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AN INVESTIGATION INTO THE INFANT MORTALITY RATE

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The infant mortality rate is of considerable importance as an index to social conditions. For this reason, and in order to assess the value of the efforts made by the medical and welfare organizations dealing with Native communities, it is most essential that it should be accurately computed.

According to the strict definition of a rate the 'occurrence of an event' recorded in the numerator during a specific interval of time must be related to the *total exposures to the risk*, which should be recorded in the denominator. In the infant mortality rate the figure in the denominator is not an enumeration of the population exposed to the risk. To illustrate this: If an epidemic occurred in the early part of the year the deaths would be recorded in the numerator but not all the exposures to risk, viz. children born in the previous year, would have a place in the denominator. Theoretically, it would thus be possible to have the numerator greater than the denominator, an impossible result.

In European communities where the population is stable and the certification of births and deaths complete, the infant mortality rate is a reliable index. But for Bantu populations the rate is ordinarily far from accurate and if these figures of life and death were examined with the same scrutiny as a financial report one would find that in many cases the auditors of human affairs had produced a balance-sheet with missing debits and credits and without any disclosure of them. From the rates thus computed no valid comparisons can be made as between different times or between different areas.

If we examine the way the rate is computed for most Native populations, we shall find that the methods of recording are far from satisfactory. We have a whole conspiracy of social disorganization in operation against accurate figures. Sick children are brought into the towns where there are medical services. When these immigrants to the town live with friends resident there they are often counted as permanent residents. If they die the deaths are recorded as belonging to the town, and consequently the infant mortality rate of the town is falsely inflated and that of the area from which the sick infant came falsely reduced. Thus the places with the better medical services tend to have the worst rates. Regarding birth registration: if the facilities for confinement in the town are limited, the expectant mothers return to the rural districts, where they can be cared for by their parents, and afterwards return with the new babies to the town. Consequently the number of births in the town is reduced and its infant mortality rate correspondingly inflated. In the rural area the same population movements tend to produce a (false) low infant mortality rate. The problems of population movements are well illustrated by the figures in Table III, referring to Evaton, a native peri-urban area, where within 1 year of birth 83 out of 197 babies born (42%) could not be traced.

The registration of births and deaths has now been made legally compulsory for all races in both rural and urban areas. This, we feel, has only made the position worse, because the law itself has given the figures a more reputable standing which the facts do not justify. A real compulsion applies to deaths, because no burial order can be given unless a death certificate is produced. But Natives do not find it necessary to have birth certificates, with the result that in spite of the law many births are still not registered. In Durban over a 6-month period of compulsory registration the registered Bantu births were actually less than in the corresponding period when registration was not compulsory.[1]

Accuracy in the determination of the infant mortality rate is most important as even a small improvement of 2% per annum over a period of years would represent a considerable saving of lives. In Great Britain from 1873 to 1943 the rate dropped from 150 to 50 per thousand, a decrease of 66.6% in 70 years, and a more or less steady linear decline from the beginning of this century. Contrast this with the great variation of the local South African figures. In some tables there is 100% difference between two consecutive years. In Pretoria the rate for Natives had dropped from 304 in 1943 to 151 in 1950, a decrease of 50% in only 7 years. Although registrations are now more efficient in this city, the improved rate is not yet accurate.[2]

More disturbing still is the difference between the rates in various urban centres. Some of these are listed in Table I for the year 1950–51. In order that comparisons can be made the lowest rate is indexed as 100.

TABLE I

Urban Area	*Native Infant Mortality Rate/1,000*	*Index No.*
Pretoria	151	100
Cape Town	238	157
Durban	369	244
Port Elizabeth	313	207
Vereeniging	176	116
Vereeniging, Sharpe Location	116	76
Vereeniging, Top Location ..	216	143

Two areas show an excess of more than 100% as compared with the Pretoria index and within one area (Vereeniging) there is nearly 100% difference between the two locations.[3]

At the Evaton Health Centre it was considered important to have approximately accurate infant mortality rates for past years in order to make comparisons with the present rates and test their correlation with the introduction of medical and welfare services. For this purpose very little reliable information could be obtained by averaging the inaccurate rates that had been calculated in past years by the ordinary methods. We have therefore obtained an approximate estimation of the Native infant mortality rates for past years in the families of the Native women attending the Evaton Health Centre by an analysis of their pregnancy histories (i.e. the number of live births and the number of deaths of children under 1 year of age in each family). These women have lived in the area throughout the period of their recorded pregnancies. Pregnancy histories of such Native women attending the Evaton Health Centre, not only for ane-natal but for all complaints, have been taken for a number of years. All such statements are checked on a subsequent occasion and if the figures do not agree with the first statement they are discarded. It is considered that this method gives sufficiently reliable infant mortality rates for purposes of comparison. The results are shown in Table II:

TABLE II

EVATON: Live Births and Deaths under one year of age computed from the Pregnancy Histories of Native Women

Age Group of Mother (by date of Mother's birth)	*Live Births*	*Deaths 0–1 year*	*Percentage Mortality*
1904–13	1,375	253	18·4
1914–23	1,873	295	15·7
1924–33	629	85	13·5

From a survey[4] it was found that in the families recorded in Table II 70% of first births occurred when the mothers were between the ages of 19 and 21. It can therefore be assumed that in the first age group (1904–1913) the first infants were born between the years 1923 and 1925 and that the total experience is from these dates to 1950, when the assessment was made.

Two points emerge from these figures. Firstly, the remarkable agreement between the percentage mortality in the last period (13.5%) and the accurate computation by an entirely different method giving a figure of 13.1% in Table III. Secondly, we have a base-line figure of 18.4% for the infant mortality of a Native community living without the evils of overcrowding and without the benefits of an organized medical service. The last decade has brought these two opposing factors into operation and there would be some justification for expecting a worse rate than 18.4% if medical services had not been established during this period.

In order to compute an accurate rate it would be necessary to observe a specific population at risk (i.e. the infants born during a specific year) for a period of 1 year and record the number of deaths amongst them during this period. Such an investigation is recorded in Table III, in which the figures refer to a specific Native population, viz. the children born to mothers attending the ante-natal clinic of Evaton Health Centre. It must be made clear if comparisons are to be drawn from these figures that they represent a specific population which has received medical care and attention.

The rate is not greatly influenced by those withdrawing from experience, for the adjustments are made as in a life table. The *total* births during a specific year are taken as the population at risk: thus no adjustment need be made for new entrants into the experience.

For convenience the assessment is made in quarterly periods. The neonatal mortality can be extracted from the records by noting the deaths at the end of the first month.

From the last column it is seen that there are 13.1% of a group of 197 births dying throughout the period of 1 year. There can be no justification in multiplying the figures by 10 to bring the rate up to 1,000. (The infant mortality rate for convenience in dealing with large numbers is divided to bring the rate to 1,000, for the inference is valid that what pertains to the larger group must pertain to the smaller. From a rate compiled on 100 births we have no justification in assuming the same figures for 1,000 births. In areas of less than 35,000 Natives it is doubtful whether the births per year would reach 1,000 and for that reason the infant mortality rate should be quoted as a percentage.)

Without the adjustments for outward transfers (i.e. infants who withdrew from experience) the rate in the above table becomes 23/197 or 11.7%, a difference of 1.4% (i.e. an errror of 10.7%).

Population movements which render the usual rate inaccurate do not affect this computation to any great extent. It has the advantage of differential assessment. By stratifying smaller areas in a town or city valid comparisons can be drawn between one area and another concerning environmental conditions and health services. Such comparisons give far more information than a single rate compiled from a heterogenous population.

In Evaton we have unique facilities for keeping infants more or less under continual surveillance. If birth records are kept, such surveillance is not necessary for statistical

TABLE III

EVATON: Native births and deaths from 0-1 year recorded quarterly from 1 March 1951 to 29 February 1952

Period in months	*No. present at beginning of period* l_x	*No. leaving during period* w_x	*No. dying during period* d_x	*Average No. at risk* $l_x - \frac{1}{2}w_x$	*Percentage dying during period* $100q_x$	*Percentage surviving during period* $100p_x$	*Percentage surviving through preceding and current periods* $100hp_x$	*Percentage dying through preceding and current periods* $100hq_x$
0–3	197	7	10	193·5	5·2	94·8	94·8	5·2
3–6	180	27	9	166·5	5·4	94·6	89·7	10·3
6–9	144	19	3	134·5	2·2	97·8	87·7	12·3
9–12	122	30	1	107·0	0·93	99·1	86·9	13·1

purposes provided definite information is available concerning the mortalities of those infants who are alive at the end of 1 year.

In conclusion it is urged that this method of computing infant mortality rates be adopted in order that this important demographic information may be made available without question as to the accuracy of the results.

REFERENCES

1. English, G. D., A/M.O.H., Durban. Personal communication.
2. Nelson, H., M.O.H., Pretoria. Personal communication.
3. Bernstein, H., M.O.H., Vereeniging. Personal communication.
4. Sachs, S. B. *Fertility and Mortality trends among a Bantu group at Evaton* (unpublished).

ABSTRACT

Vascular Complications of Juvenile Diabetes : Analysis of 40 Patients After 10 Years of Disease. H. G. Guild, W. Grubb, M. Y. F. Chu and J. B. Sidbury, Jr. (1952): *Journal of Pediatrics*, **41**, 722.

A diabetic clinic was established in the Department of Pediatrics of the Johns Hopkins Hospital (Baltimore, Maryland) in 1930. Approximately 250 diabetic children have been treated and followed for varying periods of time.

The management of diabetes during this period of 22 years has been modified from time to time, although there has been little change in the type of diet since about 1935, when the need was recognized for a normally proportioned diet, with a more generous carbohydrate content than had previously been provided. The approach, which at first was perfectionistic, with insistence on careful measurement of the diet, and with an effort to keep the urine free from sugar, has gradually become more liberal as the patient has become adjusted to his disease.

Some unco-operative patients and some careless ones, who have followed the path of least resistance, have settled into a way of life that provides a control group for comparison with those whose disease has been more carefully regulated.

In most of the patients, regular or crystalline insulin has been used for initial regulation, and has been continued for the first 2 or 3 years while the patient and mother are being taught the elements of diabetes. In a few patients who developed diabetes at the beginning of the protamine era, treatment with protamine insulin alone was instituted at the start. When, however, it was found that regular insulin eventually had to be given in addition to the protamine, it became a routine procedure to start all patients on regular or crystalline insulin, shifting to protamine with regular insulin when 2 doses daily no longer provided satisfactory control, or when fasting levels of blood sugar exceeded reasonable limits.

At the beginning, each child is placed on a measured diet. This is followed in detail while instruction in the nature of the disease and in the elements of the diet is in progress, and while familiarity with the use of insulin is being acquired. As child and mother become well versed in these details, and gain confidence, greater freedom in substitutions in introduced.

Three years ago, a survey of those clinic patients who had had their disease for 10 years or more was begun with reference to vascular complications, chiefly retinal and renal. The purpose of the study was: first, to determine the incidence and the time of appearance of these complications; and, second, to determine whether there was a correlation between the occurrence of complications and the extent to which the diabetes had been controlled. The survey included—in addition to general physical examination—detailed ophthalmoscopic examinations, urinalyses and kidney function tests, X-ray studies of the legs for evidence of calcification in the arteries, and blood cholesterol determinations, with a few other miscellaneous observations.

A total of 40 patients were available for study. It was found that vascular complications of diabetes, especially those that can be detected in the retina, may be found relatively early in the course of juvenile diabetes. Though the incidence of such complications increases with the passage of time, the time of appearance, the severity of the lesions, and the rapidity of progression are modified by the degree of diabetic control. Patients with only fair or poor control may show lesions as early as 10 years after onset, and they rarely escape some evidence of vascular damage by the time the disease has been in progress for 15 years. Patients who are consistently well controlled may remain free from lesions for as long a period as 18 years, and may show no more than minimal changes of doubtful significance for as long a period as 22 years after onset. Even in those who do not escape completely, the first appearance of lesions is delayed, and the lesions are less rapidly progressive than in the other groups.

In children in whom the onset of diabetes occurs before they are old enough to attend school, good control is more easily established and maintained than in those in whom it occurs at a later date when habits are more fixed and there has already been a taste of freedom. Since children are accustomed to parental guidance during the early years, they adjust themselves more easily to the few limitations which are imposed by diabetes, and soon remember no other way of life.

As good control as can reasonably be achieved should be the goal in the treatment of all patients with diabetes, at all ages. Regularity of attendance at clinic or at the physician's office, which permits careful supervision and systematic training in the diabetic way of life, is an important factor in the maintenance of good control. Attention to general health and habits is also of importance.

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EDITORIAL

INFANT MORTALITY

One of the triumphs of preventive medicine in the twentieth century is reflected in the great saving of infant life. It is a familiar story, but it is one of those twice-told tales that should not be forgotten, for it presents a clear and readily-understood example of a public health campaign conceived, planned and brought to magnificent success throughout a great part of the world.

It was about the end of the nineteenth century that the realization of the terrible mortality amongst infants and its preventable nature crystallized into active public opinion. The sanitary era had begun 50 years and more before and already successful results were recorded in diminishing disease and mortality; but there was little if any sign of improvement in infant mortality rates. It was recognized that, though poverty and squalor played a great part, much of the disease and mortality amongst infants was the direct result of remediable ignorance. Practical measures of a very simple medico-social character were started in France, Belgium, Britain and elsewhere. 'Infant consultations' or 'clinics' were set up, to which mothers brought their babies for examination and advice, health visitors, or public health nurses, were appointed to call on the mothers and babies in their homes and advise and persuade, and various means were used for spreading information as to how infants ought to be looked after.

This 'child welfare' movement rapidly spread throughout the civilized world, and the hoped-for results were not long delayed. Whereas in many places at the beginning of the present century between 100 and 200 of every 1,000 babies died in the first year of life, those infant mortality rates steadily declined until after two or three decades rates of 50 or 60 per 1,000 were not unusual amongst various countries and towns and to-day infant mortality rates between 20 and 30 per 1,000 are quite usual and even lower rates are by no means unknown. This trend seen in infants under a year old has occurred also in older children; for instance, the mortality rates for children at the ages of 1–5 years have fallen in the same way as those for babies under 1.

The high infant mortality of the bad old days was chiefly caused by 'diarrhoea and enteritis', by bronchitis

VAN DIE REDAKSIE

KINDERSTERFTESYFER

'n Triomf van voorkomende geneeskunde in die twintigste eeu word in die groot redding van suigelinglewens weerspieël. Dit is 'n bekende storie, maar één wat nie vergeet moet word nie, want dit is 'n duidelike en maklik verstaanbare voorbeeld van 'n volksgesondheidsveldtog wat bedink, beplan en dwarsdeur 'n groot deel van die wêreld tot 'n grootse sukses deurgevoer is.

Dit was ongeveer teen die einde van die negentiende eeu dat die besef van die verskriklike sterftesyfer onder suigelinge en die voorkombare aard daarvan in daadwerklike openbare mening gekristalliseer is. Die era van gesondheidsmaatreëls het 50 jaar en meer tevore begin en alreeds was daar suksesvolle resultate van afnemende siekte en sterfte opgeteken; maar daar was min, indien enige, teken van verbetering in die suigelingsterftesyfers. Dit was besef dat, hoewel armoede en smerigheid 'n groot rol gespeel het, baie van die siekte en sterfte onder suigelinge die direkte gevolge was van onkunde wat verhelp kon word. Praktiese maatreëls van 'n baie eenvoudige medies-sosiologiese aard was in Frankryk, België, Brittanje en elders begin. ‚Suigelingkonsultasies' of ‚Klinieke' was opgerig waarheen moeders hulle babas vir ondersoek en advies gebring het, gesondheidsbesoekers of volksgesondheidsverpleegsters was aangestel om huisbesoeke by die moeders en babas af te lê en om te adviseer en te oorreed, en verskeie metodes was gebruik om inligting oor die versorging van suigelinge te versprei.

Hierdie ‚kinderwelsyn'-beweging het spoedig dwarsdeur die beskaafde wêreld versprei, en die resultate waarop daar gehoop was, het nie lank agterweë gebly nie. Terwyl daar op baie plekke aan die begin van die huidige eeu tussen 100 en 200 uit elke 1,000 babas in die eerste lewensjaar gesterf het, het daardie sterftesyfer gestadig gedaal totdat—na twee of drie dekades—syfers van 50 of 60 per 1,000, in verskeie lande en stede nie seldsaam was nie, en vandag is 'n suigelingsterftesyfer van 20 tot 30 per 1,000 baie algemeen, en selfs laer sterftesyfers is geensins onbekend nie. Hierdie neiging wat bespeur word by suigelinge van minder as 'n jaar, het ook by ouer kinders voorgekom, byvoorbeeld, die sterftesyfer vir kinders in die ouderdomme van 1–5 jaar het op dieselfde manier as dié vir babas onder 6 gedaal.

Die hoë suigelingsterftesyfer van die slegte ou dae was hoofsaaklik veroorsaak deur diaree en dermontsteking, deur bronchitis en longontsteking, en deur sekere

and pneumonia, and by certain conditions classed as congenital or peculiar to the first year of life. The earliest and greatest improvement was seen in the diarrhoeal conditions; indeed the 'summer diarrhoea' which formerly caused terrible havoc has almost disappeared in many countries. This is perhaps not surprising when we consider that correct infant feeding has always been the most prominent item in 'child welfare'. The great fall that has taken place in deaths from bronchitis and pneumonia might not have been so readily foreseen. The doctor at the infant welfare centre of 30 years ago knew, or hoped, that the advice he (or she) was giving would prevent gastro-intestinal disease; but was it realized that it would also control respiratory disease?

We have here probably an example of the power of correct nutrition in the control of disease, a power which it is more and more realized is not confined to infancy but extends to all ages of man. Proper nutrition is the key to the prevention of intestinal and respiratory disease in infants, and to a great extent of the other conditions that contributed to the excessive infant mortality of the past; and its importance in the prevention and treatment of disease generally is not to be overlooked.

A striking feature of the child welfare movement is the simplicity of the measures that led to the early fall in infant mortality. Indeed it is impossible to resist the conclusion that one of the causal factors was general social and economic improvement independent of medical and other *ad hoc* measures. The fall in the birth rate was certainly a contributory influence. In Europe and elsewhere the improvement in the nutrition, housing and cultural standards of the formerly under-privileged classes has no doubt had a great bearing on the reduction in infant mortality and also on other changes, such as the decline in deaths from infective respiratory disease generally. The child welfare movement itself probably had a considerable influence in determining the social and economic improvement. There need be no doubt of the importance of the part which has been and is still to be played by the movement.

A factor of growing importance is the increasing knowledge that the medical profession put at the service of the community concerning both the prevention and the treatment of infantile disease. The continued reduction of infant mortality already brought so low in many communities must to an ever-growing extent depend on this factor.

White South Africans have fully shared with the white races generally in the fall in infant mortality, but this cannot be said of the non-European peoples of South Africa. Amongst the latter, summer diarrhoea is still rife. Substantial improvement has occurred in the non-European infant mortality rate in certain towns where active child welfare work is carried on, but it commonly is much more than the European rate, often between 3 and 4 times as great.

toestande wat as aangebore en eie aan die eerste lewensjaar geklassifiseer word. Die vroegste en grootste verbetering was in die diaree-toestande te bespeur; inderdaad het somerdiaree wat vroeër verskriklike verwoesting gesaai het, in baie lande byna verdwyn. Dit is miskien nie verbasend nie, as inaggeneem word dat korrekte voeding vir suigelinge altyd die vernaamste item in ‚kinderwelsyn' was. Die groot daling in sterfgevalle aan bronchitis en longontsteking kon nie so geredelik voorspel word nie. Die geneesheer by die kinderwelsynsentrum van 30 jaar gelede het geweet, of gehoop, dat die advies wat hy (of sy) gegee het maagdermsiekte sou voorkom; maar was dit besef dat dit ook asemhalingsiektes sou beheer?

Ons het hier waarskynlik 'n voorbeeld van die magtige invloed van regte voeding op die beheer van siekte, en dit word meer en meer besef dat dié invloed nie net tot suigelinge beperk is nie, maar dat dit alle ouderdomsgroepe raak. Behoorlike voeding is die sleutel tot die voorkoming van ingewands- en asemhalingsiektes by suigelinge en moontlik tot 'n groot mate van die ander toestande wat bygedra het tot die oormatige kindersterftesyfer van die verlede; die belangrikheid daarvan met die voorkoming en behandeling van siekte oor die algemeen, moet nie oor die hoof gesien word nie.

'n Opvallende kenmerk van die kinderwelsynbeweging is die eenvoudigheid van die maatreëls wat tot die vroeë afname in die sterftesyfer gelei het. Dis inderdaad onmoontlik om die gevolgtrekking te weerstaan dat afgesien van mediese en ander *ad hoc* maatreëls die algemene sosiale en ekonomiese verbetering een van die oorsaaklike faktore van dié afname was. Die daling in die geboortesyfer was sekerlik 'n bydraende faktor. In Europa en elders het die verbetering van voeding, behuising en kulturele standaarde van die eertydse onderbevoorregte klasse ongetwyfeld 'n groot strekking op die afname in kindersterftesyfer gehad, ook op ander veranderings, soos die afname oor die algemeen van sterfgevalle aan aansteeklike asemhalingsiektes. Die kinderwelsynbeweging het waarskynlik self 'n aansienlike invloed, op die bepaling van die sosiale en ekonomiese verbetering, uitgeoefen. Daar hoef geen twyfel te bestaan nie oor die belangrikheid van die rol wat die beweging gespeel het, en nog moet speel.

'n Faktor van toenemende belangrikheid is die aangroeiende kennis wat die mediese professie, betreffende beide die voorkoming en behandeling van kindersiektes, tot diens van die gemeenskap stel. Die voortdurende afname in kindersterftesyfer, wat alreeds in baie gemeenskappe so 'n laagtepunt bereik het, moet meer en meer van hierdie faktor afhanklik wees.

Blank Suid-Afrika het tenvolle met die wit rasse oor die algemeen in dié afname van die kindersterftesyfer gedeel, maar dit kan nie van die nie-blankes van Suid-Afrika gesê word nie. Onder laasgenoemde is somerdiaree nog algemeen. Aansienlike verbeterings het in sekere dorpe waar aktiewe kinderwelsynwerk gedoen word, by die nie-blanke sterftesyfer voorgekom, maar dié sterftesyfer is in die algemeen baie hoër as die blanke syfer, dikwels tussen 3 en 4 maal só hoog.

THE MEDICO-SOCIAL AND MEDICO-SOCIOLOGICAL CONTROL OF VENEREAL DISEASE*

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I. THE MEDICO-SOCIAL CONTROL OF VENEREAL DISEASE

This involves, in the main, the application of educational and legislative measures.

(1) EDUCATIONAL MEASURES

The need for education *vis-à-vis* the wider aspects of the problem of V.D. control applies both to (i) medical personnel and (ii) the general public.

(a) *Education of medical personnel*

The control of venereal diseases will depend in great measure on how well medical practitioners have been trained in the management of these diseases. A minimum curriculum for venereological work should be laid down in all medical schools; and the course should in particular embrace intensive training in advanced methods of diagnosis and treatment.†

Informative literature should be regularly sent by the health authority to all private practitioners with a view to securing their co-operation in the V.D. control programme. The educational material used should be scientific and brief and should deal, in particular, with some special problem in diagnosis, treatment, etc. From time to time medical practitioners should be sent copies of the material used in public education in order that they may be encouraged to supplement, by personal instruction, the purpose of these pamphlets.

Provision should be made for the training and instruction of auxiliary medical personnel such as nurses, social workers and public health workers in venereal disease control work. Such training and instruction would normally be jointly undertaken by the Medical School, the Nursing College, and the Local Health Authority.

(b) *Education of the Community*

The education that the public needs involves something more than the mere imparting of knowledge of the medico-biological aspects of the sexual life of men and women. Sex represents only one aspect of the wider field of human relationship, and the purity of its expression is dependent upon what other factors enter into that relationship, such as psycho-spiritual and socio-economic values. In so far as this is true, it is clear that the type of education called for is not that which appertains to sex alone, but rather that which leads to a refinement of human relations through the proper evaluation and appreciation of the psycho-spiritual and other factors upon which such relationship depends. Such education therefore merits the designation of social-hygiene education rather than sex education. Accordingly, social-hygiene education should include all educational measures calculated to assist human beings of any age, especially in childhood and youth, to cope with the problems of life, which may, in certain circumstances, find expression in a deterioration of the sexual libido as a result of which the liability to sexual promiscuity is increased, and therefore, the liability to acquiring a venereal infection.

The general task of social hygiene is thus necessarily manifold, and includes the following objectives:

(i) Promoting a reverent and scientific attitude towards all aspects of human life which relate to sex;

(ii) Promoting a sense of personal responsibility in regard to the social, ethical, medical and eugenic implications of sexual behaviour;

(iii) Promoting an appreciation of the stabilizing influence of decent family and community life;

iv) Promoting a knowledge of the priniciples of sex hygiene as an integral part of mental and social hygiene;

(v) Diffusing, particularly, among adolescent youth, a knowledge of the essential hygienic and social facts relating to venereal disease.[1]

A knowledge of sex hygiene is not enough, in that it enables an individual to save himself from infection at the expense of others; but a knowledge of the objectives of social hygiene will inspire the individual to conduct his sexual life after a moral standard which will have reference to the highest interests of the family, the community, and the race. So conceived, sex education becomes an inseparable part of the education of the total personality of the child, and implies the development in an individual of those attitudes, habits, and ideals which will enable him to realize the higher harmonies of mind and body which is the reward of decent living. Now, while the importance of sex education cannot be challenged, the questions which may well be debated are: (1) *What agency should bear responsibility for the sex education of children*? (2) *What should be the qualifications of such agency*? and (3) *What should be the methods of approach*?

With regard to the first question, much has been written regarding the relative responsibility of home, church, school and other community agencies in the field of sex education. In the view of an 'ad hoc' committee appointed by the President of the New York State Health and Physical Education Association in 1939,[2] all three should bear joint responsibility in this important undertaking. There are several considerations which support this view. In the first place, it is actually impossible for any one of these agencies to assume entire responsibility in this matter. Co-operation of all agencies will preclude the possibility of anyone acting in a way which will alienate the support of the others. There will be no possibility of the parents' resenting the school's action, on the one hand,

* Being an abstract from the author's thesis: 'The Social Aspect of Venereal Disease', approved by the University of Witwatersrand for the Degree of M.D.

† Ample provision for training in venereology is made in all three medical schools in the Union of South Africa.

or, on the other, feeling that the home's responsibility ceases because the school's has begun.

The church, in particular, by virtue of its established prestige and moral leadership in a community, can render considerable contributions to the health and morale of young people. According to the findings of the committee in most communities where sex education has been attempted parents have generally expressed hearty approval of co-operative undertaking. There is perhaps a greater danger that they will wish to shift the full responsibility to the school or the agency. Since the whole purpose is not to reduce the responsibility of the home but to increase the opportunity for the development of the child, co-operation of all agencies is essential. A third consideration in support of such co-operation is the disintegrating effect on the child when parents, teachers and others set conflicting standards. No responsible person can possibly question the need for sex education, but what may be questioned is the ability of parents to handle the problem. While this doubt is justified, it can relieve neither home nor school of moral responsibility in the matter. Where difficulties in regard to the scope, the purport, and the method of sex education arise, these could be conveniently discussed at the forum of the parent-teacher Associations which are to-day attached to all progressive schools.

With regard to the second question, the view may be submitted that the basic qualifications for success in sex education relate to the personality of parents and teachers. The 'teacher', whether he be at home or in school, should in the first instance be a person of high character, for the very good reason that sex education is intimately bound up with character education, and is concerned with the formation of attitudes and ideals which will affect general conduct. The teacher should furthermore have a sympathetic understanding of the finer needs of adolescent youth, and a general acquaintance with their developmental characteristics at different levels of morality. The possession of these personality characteristics should however go with a sound educational background, embracing a knowledge of the place of sex in the general curriculum; and also a knowledge of its physiological, biological, psychological, and sociological aspects, with an ability to interpret that knowledge according to the psychological needs of the children.

The education of the general public in regard to the menace of venereal disease should be the permanent concern of the proper authorities; but such education, to be of value, must expose the problem in all its fundamental relationships, that is, to personal, family, and social disorganization.

(2) LEGISLATIVE MEASURES

There are, generally speaking, 3 types of laws relating to social hygiene, and they are: (a) venereal disease control laws; (b) premarital and prenatal laws; and (c) laws for the repression of prostitution.

These legal measures may be considered seriatim:

(a) *Venereal Disease Control Laws*

Adequate health laws for the control and prevention of venereal diseases are the instruments which enable the State to deal effectively with these diseases as public health problems. Some general observations may be made regarding the fundamental aims of health legislation, and they are these: (1) Good social hygiene legislation should include provisions declaring venereal disease to be contagious, infectious, communicable, and dangerous to public health, and requiring also the reporting or notification by physicians and others of such diseases and of ophthalmia neonatorum, the examination by health officers of persons reasonably suspected of being venereally infected, and their detention pending completion of examination, follow-up of sources of infection and the contacts. (2) Health authorities should be obligated to provide treatment for all infected persons, regardless of their financial status, and to quarantine or isolate infectees, when necessary, for the protection of the public health. (3) Local health authorities should be empowered to make and amend venereal disease control regulations, and to declare them to have the force and effect of law. Such regulations as are promulgated under the health laws of a state should, with the object of bringing venereal diseases under permanent control, prohibit (a) any person other than a registered medical practitioner from treating a case of venereal disease; (b) the advertisement of venereal disease remedies and cures; and (c) the sale of drugs or medical preparations for the treatment of venereal diseases, except on the prescription of a registered medical practitioner. Such regulations should provide, too, for the compulsory notification and prophylaxis of all cases of ophthalmia neonatorum on the part of the medical practitioner or other authorized person in attendance at a confinement, and for the penalizing of any person, who, suffering from a venereal disease, knowingly exposes others to infection.[3]

These laws and regulations, which constitute the minimum requirements in venereal disease control, have, in the main, been embodied in most Western and other countries such as the U.S.A., the Scandinavian countries, Great Britain, and the countries of the Commonwealth such as the Union of South Africa. Where these countries differ is in the degree to which notification and treatment are compulsory by law. These differences in the emphasis on V.D. legislation may be usefully discussed in regard to a few selected countries. Thus:

In Sweden, in terms of the Swedish Act of 1918, every person suffering from venereal disease must submit to medical treatment and obey instructions. This treatment can be furnished only by a qualified practitioner. Free treatment is provided by the government for all patients irrespective of their financial status. All cases not previously treated by another physician must be forthwith reported by the physician handling the case to the local health officer as to sex, age, and domicile, but without divulging the patient's name. Sweden is the only one of the Scandinavian countries requiring that this reporting shall relate to the patient as an individual, and not merely 'as a component part of a statistical aggregate'. The name of the patient must appear in the physician's own records, but is not entered upon the official records unless he or she defaults in treatment or unless some other reason calls for coercive measures. The obligation rests upon the physician to ascertain the source of the infection, if possible, and to convey the name and address of the alleged infecting person, when obtainable, to the local inspector of health. Any person suffering from venereal disease in an infectious stage who knowingly exposes any other person to the risk of infection is liable to prosecution. When patients fail to

follow the prescribed course of treatment and other instructions the authority of the law may be invoked to secure compliance.

In Denmark the health laws differ from those in Sweden in the following important respects: (a) The routine reporting of cases by the examining physician to the local health authority consists merely of a statistical total for his new cases during a certain prescribed period, but there is no reference at all to the patient as an individual. The patient's name is only revealed to the health authorities in cases of default in treatment. (b) There is no legal obligation on the examining physician to ascertain the identity of the source of infection. (c) The compulsory examination of suspected cases or sources of infection cannot be insisted upon except in the case of prostitutes and those charged with some sex offence. In spite of these differences the Danish system succeeds in retaining under treatment all but a very few of the persons who come under medical care for venereal diseases. In the last resort persistent refusal to undergo treatment can be punished by fine or imprisonment, but it is rarely necessary to take penal action of this kind.

In Norway the compulsory provisions are fewer than in Sweden or Denmark, and there is no free treatment except for sailors and indigents; and the incidence of venereal diseases is stated to be higher.[4]

In Holland the control procedures differ widely from those in Scandinavia. The treatment is largely in the hands of voluntary agencies supported to a limited extent by governmental subsidies. There is no notification of cases, and no compulsion to undergo treatment. Whatever may be seemingly lacking in the way of legislative provision is probably made good by the duties performed by social personnel whose duties, under the health laws, are: (a) To see that the patient can and does carry out the prescribed treatment; (b) to discover and bring under treatment the source of the patient's infection; and (c) to prevent the spread of the patient's infection.

In the U.S.A. the voluntary co-operation of patients is regarded as a desideratum of prime importance, but it is held at the same time that certain legal requirements, some of them mandatory in character, are also essential. This is evidenced in all the 48 states by the wide miscellany of statutes and regulations, not a few of which are similar to those found in Scandinavia. Most such laws have been enacted since World War I. In the majority of American jurisdictions, clinics and physicians must report both syphilis and gonorrhoea cases to the health authorities, doing so in some states by name. Most of the states also have laws that call for the reporting by name of the source of infection, when it is known. They likewise require the reporting of the name and address of patients who discontinue medical treatment sooner than they should. Local health officers are usually empowered to require the medical examination of prostitutes and other offenders against morals who are alleged or reasonably believed to be infectious. A number of states have passed laws making mandatory a serologic examination for the discovery of syphilitic infection in both applicants for a marriage licence, and also in pregnant women. A dual plan thus exists in the U.S.A., with voluntary and compulsory methods dovetailing into each other.[5]

In Great Britain all local authorities are required by law to establish local treatment centres or clinics, or, if unable to do so, must enter into a contract with some nearby city or county to provide the needed treatment. The work is subsidized by the central government. Diagnosis and treatment facilities are furnished to all venereal patients at these centres entirely free of charge, regardless of their own financial status. Treatment is confidential and compulsion is notable by its absence. Patients are identified by numbers, and there is no notification or official reporting of cases. There is no follow-up of defaulters. There is no compulsion, or clinic staff to institute enquiries as to the source of infection or as to other contacts. In effect, the responsibility for locating sources and contacts with a view to examination and treatment is left entirely to clinic patients. Patients believed or known to be spreading their infection cannot under law be restrained from doing so. Some of the V.D. centres employ an almoner (social worker) whose duties are in the main similar to those of social workers in Holland and in the U.S.A. But the almoner is not permitted to investigate sources of infection or to visit contacts for the purpose of urging their submission to medical treatment.

In the Union of South Africa legislative machinery for the suppression of venereal disease is provided under the Public Health Act of 1920. In terms of Chapter IV of this Act, the Minister, subject to regulations that he may make, may: (a) provide for free treatment of patients, including, where necessary, accommodation and maintenance in hospital; (b) arrange for free laboratory examinations; (c) supply without charge remedies for the treatment of free patients suffering from venereal disease under conditions approved of by him; (d) refund to any local authority two-thirds of the cost of any approved scheme for providing treatment; (e) establish and maintain venereal diseases hospitals himself; and (f) make grants-in-aid to local authorities or other public bodies or voluntary societies or associations for the purpose of preventing the spread of, or securing the proper treatment of patients suffering from, this disease. Furthermore, the Act lays certain obligations upon medical practitioners, upon persons suffering from a venereal infection, and upon the parents or guardians of infected children. Thus every medical practitioner who attends a case of venereal disease must (a) warn the patient of the nature of the disease and of the penalities for infecting other persons; (b) warn the patient against contracting marriage until cured; (c) give the patient such printed information as may be supplied by the department for that purpose; and (d) report to the M.O.H. of the L.A. in writing if the patient has the disease in a communicable form and is not under treatment or is not attending regularly for such treatment. Also, every M.O.H., district surgeon in his official capacity and Government medical officer who knows or suspects that any person has a venereal disease in a communicable form, and is not under regular treatment by a medical practitioner, must give written notice to the patient of the requirements of the Act in regard to treatment, and if the patient does not comply with those requirements must report the matter to the magistrate, who after further enquiry will make an order or institute proceedings to ensure that the requirements of the law are carried out. Again, any person who, knowing he is infected, wilfully or by culpable negligence infects any other person is guilty of an offence; and persons suffering from a venereal infection in a communicable form may not work, or be employed in any commercial, institutional, domestic, or other premises entailing the care of children or the handling of food. And lastly, parents and guardians of infected children are obligated to place them under treatment by a medical practitioner until cured or free from the disease in a communicable form.[6]

Different kinds of compulsory and voluntary measures exist in the countries which employ them. The manner of applying compulsion may range all the way from slight coercion brought to bear upon a patient by an officer of a public health department to a drastic enforcement of law through judicial processes.

There are several vital points to be considered in deciding the relative merits of the voluntary and the compulsory systems. Thus the extent and manner of applying coercive regulations in different countries must obviously vary with the form of government and with the traditions and temper of the people. As Towne[7] remarks, the empowering of Scandinavian health officials to compel any person to submit to medical examination merely on allegation or suspicion would be quite out of harmony with the spirit of American and British institutions. To resort to the over-drastic use of police coercion or actual court proceedings in venereal disease cases when moral suasion might serve the purpose is wholly unacceptable in a modern democracy. Again, an argument is commonly put forward which appears to be invalid, namely, that the compulsory system is superior to any other by virtue of

the fact that in countries in which it is practised the V.D. rate is considerably lower than in countries in which the voluntary system obtains. Can the relatively lower V.D. incidence rates in Sweden and Denmark, for instance, be attributed entirely to the fact that in these countries the compulsory control system is in force? From the standpoint of methodologic analysis an affirmative answer cannot be given to the question. The burden of this study rather indicates that many inter-related factors enter into the problem of venereal disease prevalence, such as psychological, social, economic, medical, legal, and, one might add, political, factors; but cognizance must be taken of these and other factors before an evaluation can be attempted of the adequacy of a particular control system. For example, the incidence of venereal disease in a community is obviously modified by the amount of medical and social prophylaxis practised, by the degree of law enforcement against vice, by the extent of unemployment, by the pattern of population distribution, and last but not least, by the amount of financial support provided for the particular control system in different years. The plotting of statistical trends for comparative study can carry little significance unless they are correlated with the factors referred to.

(b) *Premarital and Prenatal Examination Laws*

In every country to-day the social conscience is awakening to the paramount need of combating venereal disease. The protection of marriage and child life against these diseases currently engages the attention of all pubic bodies dedicated to the task of social hygiene. The view is gaining ground in medical and ecclesiastic circles that no person who has ever been afflicted with gonorrhoea or syphilis should be granted a marriage licence until he can produce a certificate from the State or local authority to the effect that he is not suffering from syphilis or gonorrhoea in a communicable form.

In the U.S.A. up to the year 1944, 30 states passed premarital examination laws whereby before a marriage licence might be issued both partners were required to undergo serologic and other tests to establish freedom from a venereal infection. Up to 1944, about 30 states passed laws requiring serologic tests for syphilis in expectant mothers as a protection of the offspring against congenital syphilis.[8]

These laws, in the view of Snow[9] and of Stokes and Ingraham,[10] have served as valuable instruments in the struggle against venereal disease. They have facilitated the task of case-finding: have lessened the transmission of syphilis in marriage; and have had a general educational value in keeping the problem of syphilis clearly before the public mind. Nevertheless, their administration presents some grave difficulties. Moore[11] refers to the fact that in the diagnosis of syphilis reliance is placed almost entirely on serologic tests, the specificity of which for syphilis is both technically and biologically short of perfection. Several diseases, including two common ones like malaria and infectious mononucleosis, cause false positive results in a significant proportion of cases. A considerable number of non-syphilitic persons will therefore be caused undue alarm and will be unjustly obliged to defer marriage while the significance of false positive or doubtful results is being unravelled. He points out that the blood test is not a test of infectiousness in syphilis and that a clinical examination would likewise fail in this respect, since most patients at the usual age of marriage who are infected with syphilis will show no gross physical evidence of the disease. Moore also remarks that the law will not serve its purpose in preventing the spread of syphilis within marriage for the reason that premarital intercourse is so frequent as to make the law as valuable as the locking of the stable door after the horse has been stolen.

The difficulties which inhere in the administration of premarital and prenatal examination laws are very real, but still the purpose of these laws deserves universal attention. They are meant for the protection of innocent human beings in that they are aimed at safeguarding uninfected partners in marriage, and therefore the unborn babies. For social welfare and health conservation these objectives are highly important, and infected individuals too, are benefited. Opposition to laws for the protection of the public against preventable disease is usually based upon ignorance; but it can be overcome by patient and persistent education and judicious enforcement.[12]

(c) *Laws for the suppression of prostitution and the elimination of its associated problems*

The instrument of law can be made to contribute towards the elimination of prostitution and some of its problems. Prostitution is the chief means of the spread of venereal diseases, and most countries have legislation to combat the menace. The U.S.A., Scandinavia, Great Britain, South Africa and other members of the British Commonwealth have been prominent in this regard. The laws against prostitution can, in most countries, be used not only against the prostitutes but also against third parties, such as brothel-keepers, 'madams', procurers and go-betweens, who exploit prostitutes and their customers for profit. Statutes dealing with third parties are commonly known as 'pandering' or 'white slave' laws. These laws are strictly construed by the courts and penalties are usually severe. In the U.S.A., the standard form of law on prostitution (the 'Vice Repressive Law'), drafted by the Federal Government for the benefit of the various states, has a number of unusual provisions which invite attention. This law makes both parties guilty, so that the male customer can be punished as well as the prostitute herself.

The laws appertaining to prostitution in various countries have proved effective in minimizing, as far as legal methods can, the conditions that encourage the spread of the venereal diseases. But the criminal law *vis-à-vis* prostitution, however vigorously enforced, can never, by itself, attain the main objective of social hygiene, which is the liquidation of the venereal disease menace. It must work hand-in-hand with official and voluntary public health and social welfare agencies.[13]

Some useful recommendations were made by Clarke,[14] in his study of conditions in New York (1942), for the compulsory examination for syphilis or gonorrhoea in a communicable form, and the consequent treatment, of persons arrested for prostitution and other sex offences. He further recommends the application of a considerable measure of compulsion in the treatment of all persons found to have these diseases in a communicable form. For

this purpose he recommends committal to a designated hospital until the disease is rendered non-communicable, unless conditions permit of satisfactory home-treatment under private medical care. He makes the comment that cases released for private treatment usually disappear long before the completion of treatment, and that there is reason to believe that they often engage in the practice of prostitution even while under medical care. Experience has shown that the interest of the public health is best served by keeping such individuals in a hospital until non-infectious. For this reason the health department should insist upon the fullest compliance with the requirements of the Public Health Law before releasing any case from the isolation hospital. The cases released should be carefully followed up by a specially trained public health nurse, and the physicians treating them should report to the Health Department each week. If a person so released fails to comply with the requirements, there should be no hesitation in returning them to the hospital. Persons found to have syphilis or gonorrhoea, but not in an infectious form, should be referred to appropriate sources of treatment.*

(3) SOCIAL PROTECTIVE-PREVENTIVE MEASURES

These measures aim at the removal of disorganizing factors which contribute to the development of sexual delinquency in a community, and they include the following:

(a) *The consolidation of family life*

The vast majority of cases of sexual delinquency among youths of all communities can be traced to emotional and material neglect on the part of parents whose minds are perpetually burdened with worry, overwork, and financial responsibility. Lack of economic security, which means deprivation of the common comforts and simple luxuries enjoyed by others, and parental ignorance, which may express itself in brutality and injustice, will invariably drive children of either sex from the moorings of home. When parents fail to take an interest in their children, a barrier is set up which precludes the possibility of finer spiritual communion. Such a psychologic situation is impossible to bear, and the children who are sensitively made will endeavour to escape from it—and very often through the pathologic channels of sexual delinquency. Such homes need all the help that a community can give in the way of organized guidance and assistance. Organizations such as the parent-teacher associations that are to-day attached to most progressive schools could render valuable contributions towards the integration of affected families.[15] The education of parents in the higher emotional needs of their children would do much to light the lamps of love and hope and charity in the home. Rebellion would then not flame up so readily in the hearts of the children, and they would turn to their parents, and their parents to them, each giving and receiving of the substance of blessedness. Miriam van Waters,[16] Superintendent of a women's prison, has aptly said that delinquency could be wiped out in a generation if when a home is broken—as by death, sickness, separation, divorce, desertion or conflict—an emotionaly mature person could become identified with the affected family and help it through the disorganizing emotional crisis. Dr. van Waters feels strongly that broken homes are the greatest contributory factor to sexual dilinquency. It would seem, then, that the supreme task of social hygiene must ever lie in the abatement of the forces which lead to the break-up of home and family; and the submission might reasonably be offered that this desired objective may be best achieved by mobilizing the available socio-cultural resources which will (i) enable every individual to secure a finer understanding of the psycho-somatic structure of the human personality so that his appreciation of the sanctity of life will be enhanced; (ii) make possible the preparation of young men and women for the higher obligations of marriage and parenthood; and (iii) encourage the building of healthy well-adjusted family life.

Assistance should not, however, be limited to the psychological plane. Thus in the experience of Zalduondo[17] and the author[18] and others, the most dominant factor in the causality of sexual delinquency is economic privation. Insufficient earnings bear a close relationship to the style of living. Crowded living conditions and forced proximity to neighbours of dubious character invariably retard the psycho-biological development of adolescents and adults alike. The overcrowding that occurs among the poor of all peoples forces the children to become familiar with the sexual act at a time when they lack the intellectual and emotional maturity to understand the biological, psychological and economic responsibilities which emerge from a sexual relationship. Further discussion is hardly necessary to show that the psychological and economic rehabilitation of deprived families must go hand-in-hand if the optimum results are to be achieved.

(b) *The education and day-care of children*

This is the second most effective weapon against delinquency. Home and school are the two biggest factors in the world of a child. In the chaos of the post-war world communities everywhere have to cope with overcrowded school buildings, with teacher shortages, and with increasing numbers of maladjusted children from broken homes. Truancy and vagrancy are not uncommon among school children; they invariably represent the first step towards the more serious type of delinquency, namely sexual promiscuity, which finally must end in infection with a venereal disease. The great number of 'latch-key' children who perennially roam the streets of the world's cities, and the gangs of teen-agers to be found mooning in parks and playgrounds without supervision, certainly invite immediate public attention. Day-care facilities are obviously necessary for the category of neglected or rejected children, and the provision of such facilities might well be the joint responsibility of the school, the local authority, and private social agencies.

(c) *The provision of recreational facilities*

The provision of wholesome recreational facilities has the effect of promoting the integration of family life and

* Many of the public health principles envisaged by Dr. W. Clarke and relating to the suppression of venereal disease are embodied in public health practice in the Union of South Africa.

of guarding children and adolescents against the evil conditions which lead to sexual delinquency in particular and to criminality in general. Local communities might give special attention to the extention of existing recreational facilities and the development of new ones with the end in view that such activities shall satisfy the emotional needs of young people for recognition, attention, affection, adventure, etc. Such constructive activities should be able to counter the distractions of tawdry commercialized recreations. School buildings might be utilized as a venue for organized recreational activities.[19]

(d) *The social protection of adolescent youth*

The constant influx of men and women from the rural to the urban areas in search of work and adventure, and the chronic lack of housing accommodation and educational and recreational facilities, have wrought a degree of socio-moral disorganization which compels attention. Surveys carried out in the U.S.A., for instance, show, according to Clements,[20] that 'an alarming number of young girls, both transient and local, are being exposed to grave dangers. In many areas there is no agency assuming the responsibility for keeping young people in more wholesome recreation than the juke joints, honky-tonks, cheap dance halls, and under-world gambling dens. Young girls, many of them in their early teens who bring to the city nought but the bloom of innocence fall an easy prey to underworld characters who are ever ready to exploit human loneliness, misery, poverty, and degradation; and such girls are soon involved in situations that lead to promiscuity, prostitution and finally to venereal infection. In the average community there is seldom a protecting agency alert to these dangers.' The mobilization of social action in this regard is accordingly called for. The duty of providing protective services devolves upon public and private agencies and the work of these agencies should be integrated by a co-ordinating body—Social Hygiene Society or its equivalent—whose executive personnel should be representative of all the participating agencies. The Social Hygiene Society should be primarily an organization of citizens concerned with the identification of moral hazards and with the promotion and development of effective public services *vis-à-vis* such social questions as prostitution, venereal disease, crime and delinquency. Such an organization should be free of any public or governmental tie-up and should be at liberty to express its views and plan its programme without deferring to any governmental or private group. Its policy should be directed to the attainment of the following objectives: the prevention of prostitution and the rehabilitation of its victims; the suppression of organized prostitution by law enforcement; the discouragement and prevention of overt sexual promiscuity; co-operation with special medical agencies in case-finding, case-holding, and in the follow-up of venereally-infected persons; and the 'preventive' education of the general public through schools, churches, parent groups, etc. For the work of a social hygiene organization to be successful, smooth co-operation with the police, adult and juvenile courts health departments, and social welfare agencies will be essential.[21] It should be stressed, however, that the objectives of social protection, important as they are, should never aim at the infringement of civil liberties. The local law enforcement agencies, with which the Social Hygiene Organization closely co-operates, should have in their force a staff of well qualified policewomen who are trained in the field of social work and have a knowledge of protective and preventive services for both boys and girls. Their duties should include the following: the inspection of places of commercialized recreation; the patrolling of public places with the object of safeguarding women and children; the prevention of street-soliciting; the investigation of complaints involving sex offences by or against women and children; keeping observation on areas and places making for crime and sexual delinquency. To put it more concretely, the fundamental duty of policewomen is not to wait for the development of delinquency, but to prevent delinquency from developing; they must frequent places where trouble is likely to occur, and contact the individual before he or she gets into serious trouble. In the words of Miss Eleanore Hutzell,[22] Chief of the Women's Bureau, Department of Police, Detroit, and America's outstanding authority on women police, 'a policewoman is a policewoman plus, and that "plus" is a concern about why people get into trouble, and a desire to do what can be done to prevent their getting into trouble again'. Essentially, then, a policewoman's duties are preventional, redirectional, and correctional in character. The development of the idea of women police is still in a vague and uncertain stage in most countries, but the fact deserves to be universally recognized that whenever their services are mobilized they are a factor of supreme importance in social protection. 'The possibilities of their work,' said Fosdick [23] in 1920, 'with women and girls along preventive lines, as well as with the conditions which affect women and girls, are almost immeasureable.' This was said 10 years after the appointment of the first policewoman, Miss Alice Stebbins Wells, in Los Angeles, U.S.A. It has to be recorded that since Raymond Fosdick made his historic statement policewomen have more than fully justified their existence as a power for good. They have proved their ability to identify community 'moral hazards' and to present them effectively to civic authorities for eliminative action; and in the rôle of 'social catalyst' they have expedited the integration of law enforcement and social agencies.

II. THE MEDICO-SOCIOLOGICAL CONTROL OF VENEREAL DISEASE

It is shown in the author's thesis that the incidence of venereal disease in a community is due, in the main, to impersonal or environmental forces emerging from a particular societal pattern, and further, that such incidence varies inversely as (1) the proportion of married persons in the population, and directly as (2) the proportion of young adults in a community, and the degree of (3) disparity of the sex ratio, (4) racial heterogeneity (especially where racial heterogeneity and socio-economic differentiation are synonymous terms), (5) economic stratification, (6) illiteracy, (7) horizontal social mobility, (8) urbanization, (9) prostitution and (10) directly as the degree and duration of social disorganization in the population, as is caused by war.

The task of social government in any country, after it has recognized and isolated these sociologic determinants of venereal disease incidence, is to eliminate them by rational methodological procedure. When the interdependence of the causal factors of venereal disease prevalence has been recognized control measures must be directed in the first instance to the dominant causal factors rather than the recessive. It has been indicated above, in passing, that among the sociological determinants of venereal disease incidence, the marriage rate, the mean age at marriage, and the factors of social and occupational differentiation, of horizontal social mobility, of educational attainment, and of prostitution, are, by and large, functions of the dominant variable of economic condition. It would be idle, for example, in the struggle against venereal disease, to direct the propaganda of governmental authority to the encouragement of early marriages while the economic factors which make such marriages possible are ignored. Also, any campaign against prostitution, as a focal point of the dissemination of venereal disease, would be futile, if the frustrational factors with which it is sociologically correlated, such as cultural and economic poverty, were ignored. Again, educational and cultural advancement of a community, which creates a desire for the higher forms of self-expression; the stabilization of rural economy, which reduces the volume of rural-urban migration; and the provision of creative occupational opportunity, which ensures a measure of social security—all these are sociologic processess which can emanate only from a society characterized by a high degree of harmonic integration of its forces and resources.[21] In a dynamic society such as ours, in which the social processess of conflict and competition constantly operate, harmonic integration is difficult of attainment; and until the third social process of creative accommodation comes into being, whereby men and nations now locked in conflict come to terms for the sake of their greater common good, the manifestations of our social pathology, such as venereal disease on the one hand, and prostitution, crime, delinquency, on the other, will continue as insoluble social problems.[21]

REFERENCES

1. Everett, R. H. (1943): J. Soc. Hyg., **29,** 615.
2. Editorial (1940): J. Soc. Hyg., **26,** 297.
3. Gould, G. (1944): J. Soc. Hyg., **30,** 436.
4. Towne, A. W. (1939): Amer. J. Syph., Gon., Ven. Dis., **23,** 348.
5. Towne, A. W., *op. cit.*
6. Cluver, E. H. (1949): *Medical and Health Legislation in the Union of South Africa.* Johannesburg: Central News Agency, Ltd., South Africa, pp. 326–328.
7. Towne, A. W., *op. cit.*
8. Gould, G., *op. cit.*
9. Snow, W. F. (1939): Amer. J. Syph., Gon., Ven. Dis., **23,** 278.
10. Stokes, J. H., and Ingraham, N. R. (1939): J. Amer. Med. Assoc., **112,** 1133.
11. Moore, J. E. (1939): Amer. J. Syph., Gon., Ven. Dis. **23,** 386.
12. Snow, W. F., *op. cit.*
13. Gould, G. (1941): J. Soc. Hyg., **27,** 335.
14. Clarke, W. (1942): J. Soc. Hyg., **28,** 426.
15. Taft, C. P. (1943): J. Soc. Hyg., **29,** 485.
16. Van Waters, M. (1945): *Cited by* Ellis J.: J. Soc. Hyg., **31,** 263.
17. Zalduondo, C. (1944): Amer. J. Soc. Hyg., **30,** 241.
18. Freed, L. F. (1949): *Problem of European Prostitution in Johannesburg,* pp. 117, 147, 148, 193. Cape Town: Juta & Co.
19. (1) Report (1942) of Committee on Sex Delinquency Among Young Girls. Amer. Soc. Hyg. Assoc. *Cited in* J. Soc. Hyg. (1943): **29,** 497. (2) Shaw, C. R. and McKay, H. D. (1931): National Commission on Law Observance and Enforcement; Report on the Causes of Crime, Vol. II, No. 13, Chaps. II–IV, Washington.
20. Clements, A. S. (1941): J. Soc. Hyg., **27,** 350.
21. Devine T. (1945): J. Soc. Hyg., **31,** 508.
22. Hutzell, E., *cited by* Ellis, F. J. (1945): J. Soc. Hyg., **31,** 264.
23. Fosdick, R. B. (1920): *Cited by* Buwalda, I. W. (1945): J. Soc. Hyg., **31,** 290.
24. (1) Park, R. E., and Burgess, E. W. (1924): *Introduction to the Science of Sociology.* Chicago: Univ. of Chicago Press, pp. 51, 574. (2) Wirth, L. (1940): Amer. Sociol. Rev., **5,** 472. (3) Frank, L. K. (1936): Amer. J. Sociol., **42,** 335.

THE TOXICITY OF THE BLAASOP OR TOBY

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It is a well-established fact that the fishes of the family Tetraodontidae, commonly known as the blaasop or toby (South Africa) toadfish or toado (Australia), fugu (Japan), puffer, blowfish, jugfish, etc. (United States of America), botete (Philippines), maki-maki or deathfish (Hawaii) and puffer (Great Britain) are highly toxic.

In South African seas, the principal species are:

1. Cape Blaasop (*Amblyrhynchotes honckenii*), the commonest species, growing to a length of 12 inches, found from False Bay to Natal.

2. Atlantic Blaasop (*Lagocephalus lagocephalus*), 24 inches in length and found in Table Bay, False Bay to Natal, Mauritius.

3. Grey Toby (*L. inermis*), 20 inches in length and found from Algoa Bay to Natal.

4. Golden Toby (*Gastrophysus spadiceus*), 12 inches in length and found from Algoa Bay to Natal.

5. Immaculate Toby (*Arothron immaculatus*), 12 inches in length and found in Natal and East African waters.

6. Toby (*A. stellatus*), growing to 35 inches in length, the largest species and sometimes found in Knysna.

In spite of the known toxicity of these species of fish, very little research work to determine the nature of the toxin and its effects has been done in South Africa. A few cases of tetraodon poisoning were recorded from South Africa

by Richardson [9] who mentioned two deaths which occurred at the Cape of Good Hope resulting from the eating of the liver of a blaasop. One death took place 17 minutes and the other 20 minutes after ingestion.

In 1727 Kaempfer related this curious story about the toadfish:

'People that by some long and tedious sickness are grown weary of their lives, or are otherwise under miserable circumstances, frequently chuse this poisonous Fish, instead of a knife or halter, to make away with themselves. A Neighbour of my servant at Nangasaki being so strongly infected with the Pox, that his nose was ready to drop off, resolv'd to take this meal, in order to get rid at once, both of his life and distemper. Accordingly he bought a good quantity of this poisonous Fish, cut it into pieces, boil'd it, and in order, as he thought, to make the poison still stronger, he took soot from the thatch'd roof of his house, and mix'd it with the rest. After dinner he laid himself down to die and soon falling mortally sick, he brought up not only the poison he had taken, but a large quantity of viscid, sharp, nasty matter, probably not the least cause of his distemper, and by this means found life and health in what he sought for death, for he recovered and was well afterwards.'

It is recorded that in 1774, at New Caledonia, Captain Cook, the famous explorer, ate some of the flesh of the Toadfish (*Pleuranacanthus scleratus*) and became violently ill, narrowly escaping death. He stated: "About 3 o'clock in the morning we found ourselves seized with an extraordinary weakness and numbness all over our limbs. I had almost lost the sense of feeling; nor could I distinguish between light and heavy bodies, of such as I had strength to move. . . . In the morning, one of the pigs, which has eaten the entrails was found dead."

When the present writer was doing marine biological research in the seas of Kenya he was told of a case where a Swahili cook in Dar-es-Salaam had poisoned a family by serving the fried livers of a blaasop (*Chelonodon laticeps*).

The flesh of the puffer is used by natives of the United States of America, but owing to the well-known toxic nature of the roes, liver and viscera of this species of fish, these are discarded. Recently the utilization of the so-called 'trash fish' (known here as 'dirt') has stimulated certain fishing companies in the United States to experiment with commercial possibilities of puffer fishes, which, according to Yudkin,[12] began to appear on the north-eastern United States fish markets in 1943. Yudkin [12] conducted toxicity research on the roe of *Sphoeroides maculatus*, the common puffer found in the Atlantic waters of the United States.

In other countries the chemical properties of puffer poison have been studied and Japan has led the field in this research with the outstanding work of Tahara,[10] Kimura,[5] Hashimoto and Migita,[4] and others. Tahara's work on the chemical properties of tetraoden poison has been summarized by Yudkin [12]:

'Tetraodontoxin exists as a white, hygroscopic powder, very readily soluble in water and insoluble in the ordinary organic solvents. It consists of carbon, hydrogen, oxygen and nitrogen; the provisional chemical formula is assigned as $C_{14}H_{17}O_{14}$. The substance does not give any of the protein reactions nor is it precipitated by the alkaloidal reagents. The possibility that the poison is a protamine derivative is entirely excluded. The lethal dose with tetraodontoxin is 4 mg. per 1 kg. body weight.'

Nagai and Ito [7] have suggested that the poison is probably an acyclic compound. As yet the source of the poison is unknown.

Yudkin,[12] in his research into the toxicity of the roe of *S. maculatus*, found that the pharmacological properties are similar to those of the Japanese fugu poison or tetraodontoxin. The poison has a cardio-inhibitor reaction and is not destroyed by ordinary cooking.

Pawlowsky [8] has recorded that during the years 1888–1909 there were over 3,000 cases of fugu poisoning in Japan, resulting in about 2,000 deaths. Recent investigations by the Japanese National Ministry of Welfare and Health show that in the years 1949–1951 in 389 cases of this poisoning the mortality rate was 57%.

Tani [11] has revealed the fact that the flesh of most of the Japanese species of fugu is non-toxic. The toxicity of the fugu seems to bear some relationship to the gonodal activity and toxicity reaches its peak a short time before the spawning season and continues for a few weeks after spawning and then decreases.

According to Halstead and Bunker,[3] 'the symptoms of intoxication generally develop rapidly and consist essentially of numbness and tingling of the lips, tongue and finger-tips, accompanied by dizziness, headache, weakness and dypsnea. Gastro-intestinal symptoms such as nausea, vomiting and abdominal pain are usually present. The forementioned symptoms may be accompanied or followed by additional neurological disturbances, which in fatal cases may be very severe, viz., severe ataxia, impairment of speech, convulsions and muscular paralysis. Death results from respiratory paralysis and may occur in less than one hour or up to 20–24 hours. If death does not occur within 24 hours the chances for recovery of the patient are considered to be good. The treatment of tetraodon poisoning is largely symptomatic. There is no known antidote. Injections of epinephrine are believed to be of value. However, even with the best medical care the over-all mortality rate is considered to be about 60%.'

Goe and Halstead,[2] the latest workers on tetraodon poison, mention the earliest record of poisonous fishes from the Gulf of California in the work of Calvijero [1] who cited the cases of 4 soldiers poisoned by eating the livers of the botete or puffer (*Sphoeroides annulatus*) from the Gulf of California. One soldier died 30 minutes after ingesting the liver; the second a short time later; the third, who chewed the liver without swallowing it, lost consciousness for a day; and the fourth, who barely touched it, was sick for several days. Other authors mentioned these cases and stated that the liver and the flesh of the botete were used by the natives of Baja California for poisoning stray dogs. This custom is still practised in some regions to-day.

Goe and Halstead [2] carried out preliminary research as a prelude to an extensive investigation of the physiological activity of various tissue extracts from certain puffer fishes and have shown that these particular species cannot be considered as fit for either human or animal consumption. They report that of the 12 specimens of fish tested, none was found to possess toxic muscle, 11 had strongly toxic livers and 4 had strongly toxic gonads when tried out on white laboratory mice. The toxic reaction on the mice consisted of the following symptoms: 'an initial hyperkinesia followed by mild ataxia; as the ataxia progressed, dypsnea set in, developed into apnea and death ensued accompanied by moderate to severe

clonic convulsions'. They are continuing with investigations of the mechanism of the action of the toxin.

Halstead and Bunker[3] carried out canning experiments with the musculature, liver, gonads and intestines of the common Japanese puffers in order to determine the heat-lability of the toxin and have come to the conclusion that the property of heat-lability in the various species of puffer experimented on is subject to a wide degree of fluctuation, stating that the factors contributing to this situation are not clearly understood at this time.

As the South African blaasops do not differ very materially from the puffers of America or the fugus of Japan, the findings of Halstead, Goe and Bunker may prove of interest here and may lead to research into the toxicity of our blaasops.

REFERENCES

1. Calvijero, F. J. (1706): *The history of (Lower) California*. Book II, p. 213. Stanford Univ. Press.
2. Goe, D. R. and Halstead, B. W. (1953): *Californian Fish and Game*, **29**, 229.
3. Halstead, B. W. and Bunker, N. C. (1953): *ibid.*, 219.
4. Hashimoto, Y. and Migita, M. (1951): Japanese Soc. Sci. Fish. Bull., **16**, 341.
5. Kanayama, S. (1943): Fukuaka Med. Mag., **36**, 395.
6. Kimura, S. (1927): Tohoku J. Exp. Med., **9**, 41.
7. Nagai, J. and Ito, T. (1939): J. Biochem., **30**, 235.
8. Pawlowsky, E. N. (1927): *Gifttiere und ihre Giftigkeit*, p. 412. Jena: Gustav Fischer.
9. Richardson, J. (1861): J. Linn. Soc., **5**, 213.
10. Tahara, Y. (1910): Biochem. Zeitschr., **30**, 255.
11. Tani, I. (1945): Imp. Chem. Corp. (Japan), **2**, 1.
12. Yudkin, W. H. (1944): Bingham Oceanogr. Coll. Bull., **9**, 1.

NEW PREPARATIONS AND APPLIANCES

NEW DIAGNOSTIC X-RAY TUBE

At the 7th International Congress of Radiology held in Copenhagen in July 1953 Messrs. Mullard Limited showed for the first time a new diagnostic X-ray tube of greater voltage rating, greater current rating and smaller focal size than those of any tubes hitherto put on the market by British firms.

The new development, designated the Mullard MRA Rotating Anode X-ray Tube, is said to be the largest and most powerful of its kind in the world. The voltage rating is 140,000 volts, the current rating is 1,000 milliamperes and the focal size is not more than 0.3 mm. square. The tube is made from hard boro-silicate glass, resistant to both thermal and mechanical shock. It is housed in a protective shield of cast light alloy lined with lead and filled with an oil of high insulating properties. The extreme smoothness of running results from the great care that is taken in dynamically balancing the rotating parts. An important feature in this respect is the incorporation of steel ball-bearings that are lubricated with a film of lead of molecular thickness.

This tube represents a notable advance in meeting the requirements of cine-radiography. The size has been so chosen that it provides for rapid dissipation of heat during operation. The anode revolves at a high speed inside the hardest vacuum known to the electronics industry, and at temperatures that are often in excess of 1,000°C.

It is expected that the apparatus will prove of great value in the diagnosis of functional disorders, especially as applied to the heart, the stomach, the kidneys and the brain.

PNEUMONIA: PRESENT STATUS OF DIAGNOSIS AND TREATMENT

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If we define pneumonia in the broadest and simplest terms as an acute inflammatory reaction within the parenchyma of the lung, we are at once struck with the important fact that we are dealing not with a single disease entity but with a group of diseases of widely varied etiology. Since pneumonias that are due to widely diverse causes may give rise to very similar signs and symptoms, and even to identical, or morphologically indistinguishable anatomical changes in the lung, a classification of pneumonia based on etiology would obviously be more desirable than one based on clinical manifestations or on clinical-anatomical correlation. Moreover, an etiologic classification of the pneumonias has other important advantages: (1) For the practitioner it is equivalent to a therapeutic classification, inasmuch as the major curative efforts nowadays are directed primarily against the causative agent; (2) from the point of view of the public health, such a classification offers the soundest basis for epidemiologic investigations of the sources and modes of spread of the disease, and thus lays the foundation for the most fruitful type of approach to prevention; and (3) it offers the most promising approach to further research in diagnosis and treatment.

An etiologic classification of the pneumonias is presented in Table I. Adequate etiologic studies of large numbers of consecutive cases in different places, over long periods, and under diverse circumstances, are too few to permit accurate estimates of the actual or relative incidence of the various types of pneumonia mentioned in this table. This presentation will therefore be oriented from the point of view of the individual patient, and only the practical aspects of the diagnosis and specific treatment of the various types of pneumonia listed in this table will be considered.

BACTERIAL PNEUMONIAS

The relative incidence of the bacterial pneumonias, as compared with those due to viral or other agents, has become a matter of controversy and probably will remain so until simple methods for the etiologic diagnosis of all nonbacterial pneumonias become available. In spite of this, the bacterial pneumonias are still the most important group because: (1) The mortality in patients who are treated symptomatically is higher than that of any other group; (2) specific etiologic diagnosis is more often and more readily established in bacterial pneumonias by relatively simple bacteriological methods; and (3) what is most important—definitive or curative treatment, based upon the proper selection of an antimicrobial agent that is most effective against the causative organism, may be expected to yield the most satisfactory results, not only symptomatically but also by markedly reducing the mortality.

Pneumococcal Pneumonias. These are by far the most frequent of the bacterial pneumonias. Clinically, cases of

TABLE I AN ETIOLOGIC CLASSIFICATION OF THE PNEUMONIAS

I. *Bacterial Agents which may Cause Pneumonia.*
1. Pneumococci (various types).
2. Hemolytic streptococci (Group A).
3. Hemolytic staphylococcus aureus.
4. *Klebsiella pneumoniae*, types A, B, and C.
5. *Hemophilus influenzae*, type b or 'x'.
6. *Streptococcus viridans.*
7. Other streptococci.
8. *Hemophilus pertussis.*
9. *Pasteurella tularensis.*
10. *Pasteurella pestis.*
11. Coli-Aerogenes organisms.
12. Salmonella species (including *S. typh.*)
13. Meningococci.
14. *Mycobacterium tuberculosis.*
15. Mixed infections.
16. Others.

II. *Fungal Infections which may Simulate Pneumonia.*
1. Coccidioidomycosis (Valley Fever).
2. Moniliasis (*Candida albicans*).
3. Histoplasmosis.
4. Actinomycosis.
5. Blastomycosis.
6. Cryptococcosis.
7. Others.

III. *Parasitic Diseases which may Exhibit Acute Pulmonary Manifestations (Tropical Eosinophilia").*
1. Trichinosis.
2. Malaria.
3. Amebiasis.
4. Toxoplasmosis.
5. Schistosomiasis.
6. Paragonamiasis.
7. Chlonorchiasis.
8. Filariasis.

IV. *Viral Pneumonias. Etiology Established.*
1. Influenza A, A[1], and B.
2. Psittacosis (Ornithosis).
3. Lymphocytic choriomeningitis.
4. Variola.

V. *Viral Pneumonias. Etiology Highly Probable.*
1. Feline pneumonia.
2. Lymphogranuloma venereum.
3. Pandemic influenza.
4. Measles.
5. Varicella.
6. Cytoplasmic inclusion pneumonias of infant.
7. Infectious mononucleosis.
8. Primary atypical pneumonia.

VI. *Rickettsial Infections with Acute Pulmonary Lesions.*
1. Q Fever.
2. Epidemic typhus (including Brill's Disease).
3. Rocky Mountain spotted fever.
4. Boutonneuse fever.
5. South African tick fever.
6. Others (?).

VII. *Miscellaneous or Special Forms.*
1. Loeffler's eosinophilia (allergic pneumonia).
2. Rheumatic pneumonia.
3. Lipoid pneumonia.
4. Chemical pneumonia.
5. Pulmonary hemosiderosis.
6. Other foreign bodies (acute lung abscess).

pneumococcal pneumonia correspond most closely to the classical 'lobar pneumonias' with characteristic symptomatology and physical and roentgenographic findings from which the etiology can be predicted with a high degree of accuracy. The onset is sudden, usually during or soon after a common cold, with a shaking chill, or pleuritic pain, or both; and is soon followed by fever, dyspnea, cough, and expectoration of rusty sputum. The physical signs in the lungs and the roentgenographic picture as they develop indicate consolidation, mainly lobar in distribution. The leucocyte count is moderately elevated, but in very severe cases it may be low, and in patients with purulent complications it may be very high; but in either case, the polymorphonuclears greatly predominate. Properly stained smears of the sputum show polymorphonuclear leucocytes and red blood cells in the early stage and, of course, the characteristic pneumococci. Repeated blood cultures in untreated cases may yield pneumococci in about 30% of patients, but positive results are obtained in a smaller proportion of cases when only a single culture is made before specific therapy is started; they are rarely positive after effective therapy is begun.

The treatment of pneumococcal pneumonia is highly satisfactory. Penicillin is the drug of choice and may be used in any of the systemic forms and in moderate doses. Aureomycin and terramycin, however, are just as effective as penicillin; a daily dose of 1 or 1.5 grams of either of these agents, given in 250 mg. amounts, is usually adequate. Pneumococci resistant to penicillin, aureomycin, or terramycin have not been encountered, and strains of all types are equally sensitive to each of the antibiotics.* The sulfonamides, especially sulfadiazine, have also proved highly effective in the usual full doses when given with the usual precautions. Treatment is usually continued for 3 to 4 days after the temperature has reached normal, except that longer treatment is indicated if it is begun late in the disease or if complications are already present.

The most frequent complication is pleural effusion; this remains sterile if effective therapy is begun early, and under these circumstances it requires no special treatment beyond that of a diagnostic thoracotomy to determine that the fluid is sterile. Infected effusions, that is empyemas, may be treated effectively by repeated withdrawals of fluid by thoracentesis followed by intrapleural injections of penicillin; if such treatment is begun early and carried out properly, surgery is now rarely required. Other focal pneumococcal complications may occur if treatment is begun late in the disease; such complications may also yield to systematic treatment, and local penicillin instillations are used if the lesion is accessible.

The prognosis of pneumococcal pneumonia is excellent with early treatment. Deaths from this disease nowadays are confined almost exclusively to patients in whom treatment is delayed until they are already moribund, and to those who have other serious underlying diseases which themselves may be fatal.

Hemolytic Streptococcal Pneumonia. This form of pneumonia varies markedly in frequency at different times and in different localities; it is widely prevalent only during epidemics of hemolytic streptococcal infections or when measles or influenza are epidemic in areas where the streptococcus is also prevalent. The strains of streptococci involved are of various types in Group A. The disease usually begins as a pharyngitis or a tonsillitis, and then spreads by way of the lymphatics along the larynx, trachea, and bronchi to the peri-bronchial and interlobular spaces, with early involvement of the pleura. This form of pneumonia is therefore bilateral and patchy, and may be associated with peribronchial abscesses and the rapid development of sero-sanguinopurulent pleural effusions. Clinically, there are repeated chills or chilly sensations, particularly early in the disease. There is also presternal soreness and bloody or blood-streaked sputum. Bacteremia is less frequent than with pneumococcal pneumonia; but characteristic chains of cocci are seen in smears of the sputum, which also show polymorphonuclears and red blood cells.

Treatment of hemolytic streptococcal pneumonia is essentially the same as for pneumococcal pneumonia; but, although the organism is more sensitive to penicillin than is the pneumococcus, larger doses and more prolonged therapy may be required in order to maintain effective concentrations in the necrotic exudate and in the pleural effusion until they are resolved. Aureomycin, terramycin, and probably also erythro-

* As a result, type-specific antipneumococcus serums no longer have any place in the treatment of pneumonia.

mycin are highly and perhaps equally effective. Treatment of the metapneumonic empyema is essentially the same as for early pneumococcal empyema. Treatment of the pneumonia should be continued for 7 to 10 days after the temperature has reached normal and the patient has become symptom-free. Group A streptococci resistant to any of the effective antibiotics mentioned have not been encountered. Sulfonamides, particularly sulfadiazine, may also be highly effective; but they act more slowly, and sulfonamide-resistant strains have been encountered even in epidemics.

Staphylococcal Pneumonia. This is not a very common form of pneumonia, but one that is being encountered with increasing frequency in recent years. As a primary disease, it is ordinarily seen most often in infants and young children; however, it may become highly prevalent in adults in certain areas, particularly as a complication of epidemic influenza. Under each of these conditions, this is a descending infection characterized by tracheobronchitis with a spread to the pulmonary parenchyma and early abscess formation in the peribronchial areas. There is also a fulminating form with a diffuse hemorrhagic and edematous exudate; this is seen almost exclusively during epidemics of influenza, and was noted in a number of areas during the great pandemic of 1918. In infants, the abscesses may form early communication with the pleura, giving rise to pyopneumothorax; this also occurs in adults, but less frequently. In children with pancreatic fibrosis (pulmonary viscoidosis) the staphylococcus may be a major incitant in the chronic pulmonary involvement. At all ages this disease may lead to chronic pulmonary fibrosis, bronchiectasis, and chronic bronchopulmonary suppuration. There is also a metastatic form, complicating staphylococcal sepsis, in which the lung participates in the 'pyemia'; the clinical picture in the lungs in such cases is one of multiple pulmonary abscesses.

The characteristic clinical picture includes: an onset, often during or shortly after an attack of influenza or other severe illness; symptoms and signs of laryngotracheobronchitis with scattered crepitant rales; purulent sputum, often diffusely mixed with blood and showing the typical clumps of staphylococci in smears; the radiographic findings in the lungs, first of nodular densities and later of areas of rarefication, mostly in the peribronchial region. The leucocyte count varies, polynuclear leucocytosis being most frequent but low white counts being encountered, particularly in cases complicating influenza.

The proper selection of treatment for staphylococcal pneumonia is highly important, not only because of the seriousness of the disease but because—in contrast to the uniform sensitivity of pneumococci and hemolytic streptococci—there are marked differences in the sensitivity of different strains of staphylococci to antibiotics. Sulfonamides alone are not very effective, and their role in combination with antibiotics is uncertain. Penicillin is the drug of choice in infections due to sensitive strains, but the frequency with which such sensitive strains are encountered has been decreasing progressively. Aureomycin and terramycin are effective against a much larger proportion of strains; and chloramphenicol though less active generally, may be the most effective when the causative strain is resistant to the other three agents. Streptomycin may also be useful, but primarily in combination with one or another of the antibiotics. When all of these fail, the cautious use of bacitracin intramuscularly may be undertaken. In staphylococcal pneumonia, therefore, it is important to obtain the incitant organism, test its sensitivity to available antibiotics, and select or change the therapy according to the results of these tests. Recently erythromycin has proved highly effective *in vitro* against pathogenic staphylococci, but its use in staphylococcal pneumonia has not yet been reported. In other staphylococcal infections, however, the effectiveness of erythromycin has often been vitiated by the rapid development of resistance in the staphylococcus.

Regardless of the agent chosen, treatment must be intensive and prolonged. If penicillin is used, it should preferably be given as the aqueous sodium or potassium salt, a minimum of 250,000 units being used every 3 or 4 hours until the acute phase of the disease is well passed. Aureomycin or terramycin should be given in divided doses of 2 or 3 grams a day, and chloramphenicol in doses of 4 grams daily, so long as those doses are tolerated. Whichever drug is used, treatment should be continued for at least 10 days to 2 weeks after all evidence of active infection has subsided. If abscesses or empyema have already developed, the treatment may have to be carried out longer, with intrapleural penicillin being used in cases of empyema in which the staphylococcus is sensitive to that agent.

The mortality in symptomatically treated cases, when no antimicrobial agents are used, is usually higher than that of pneumococcal pneumonia; in children and in the aged, it may be over 50%. The results of chemotherapy are likewise not so favourable as in pneumococcal or streptococcal pneumonias. Some reduction in mortality was achieved with sulfadiazine and sulfathiazole. With proper antibiotic treatment, however, deaths are now infrequent in patients who are properly treated within a reasonable time after the onset of the disease, though disability may still be quite prolonged.

Friedländer's Pneumonias. These, too, are relatively infrequent but very serious infections. They are seen most often in patients over 40 years old with chronic bronchopulmonary, urinary, or gastro-intestinal tract infections; in chronic alcoholics; or in persons with other debilitating diseases. *Klebsiella pneumoniae* of types A and B are the common ones found, but Type C strains have also been implicated. The pulmonary lesion is patchy, but rapidly becomes confluent; producing a massive, heavy consolidation with the characteristic gelatinous, mucoid, brownish-red exudate, which later becomes purulent. The most important pathological feature, however, is the rapid formation of necrosis in the lung, which may result in large confluent excavations when there is a communication with the bronchus and evacuation of some of the exudate.

Clinically, the illness in Friedländer's pneumonia usually comes on very acutely, with dyspnea, cyanosis, and pulmonary consolidation progressing rapidly. There usually are also signs of the chronic underlying bronchopulmonary infection or other illness. Early in the disease the sputum is bloody, and rapidly acquires a gelatinous or currant-jelly appearance. Stained specimens show large numbers of the thick, heavily capsulated gram-negative bacilli. Cultures of the sputum give the characteristic large mucoid colonies. Later the sputum becomes purulent but the brownish-red colour may persist for some time. In severe cases the organism may be recovered from the blood stream.

Antimicrobial therapy is equally effective against *Klebsiella pneumoniae* of all types. The most effective and rapidly acting agent is streptomycin, which of course is given intramuscularly; and this is the drug of choice for starting treatment. The dose is 2 to 4 grams a day. This may, from the start, be effectively combined with aureomycin or terramycin orally (or intravenously at first, if necessary), and these antibiotics are useful for sustaining the therapeutic effect. The use of streptomycin alone for the continued therapy may be hazardous, as streptomycin-resistant strains may rapidly develop and persist for long periods in the necrotic areas in the lung. Streptomycin may therefore be discontinued shortly after the fever and acute symptoms have subsided. The broad-spectrum antibiotics must be continued for two to three weeks longer while the abscesses either heal or become walled off. Chronic bronchopulmonary suppuration may result from this disease.

The mortality in patients not treated with antibacterial agents is high, and approximates 100% in bacteremic cases. It may still be as high as 50% with intensive therapy, but most of the fatalities occur in patients in whom treatment has been delayed too long or in those who have serious complicating or debilitating diseases.

Pneumonias Due to Hemophilus Influenzae. These are not infrequent in infants and young children; in them, Type b strains are usually implicated, and the disease often begins as a severe laryngotracheobronchitis. In adults, *H. influenzae* (almost always untypable strains) is sometimes the only or predominant organism in the sputum of patients with pneumonia who have underlying chronic bronchopulmonary infections, or after they have been treated for pneumonia which was thought to be due to other organisms. In the great pandemic of influenza of 1918, and in the earlier one, this organism was frequently found in uncomplicated cases and in those with pneumonias. The occurrence and role of *H. influenzae* in pneumonias nowadays is often not recognized until after the patient has been treated either with sulfonamides or with

penicillin. In some of the pandemic cases, there was a fulminating and acutely fatal form with an acute hemorrhagic or edematous exudate in the lung. In these cases, emphysematous blebs often formed and gave rise to pneumothorax with or without empyema. This complication has probably not been encountered since the pandemic of 1918. In cases observed after treatment with antibiotics, there is usually a copious amount of mucopurulent sputum, smears of which show large numbers of characteristic tiny pleomorphic gram-negative bacilli.

In infants and young children, it is imperative to start therapy early in order to avoid the obstructive lesions that may themselves prove fatal. Streptomycin and all of the broad-spectrum antibiotics are highly and about equally effective. Laryngeal or tracheal obstruction may occur as a complication in young children, and may require emergency tracheotomy. One can only surmize that, should a pandemic form of influenza similar to that of 1918 recur, and *H. influenzae* be involved in the complicating pneumonias, or should *H. influenzae* pneumonias accompany influenza viral infections as we now know them, early and intensive treatment with effective antibiotics would be expected to prevent many of the fatalities attributable to these diseases.

Other Bacterial Pneumonias. The role of Streptococcus *viridans* in patients with pneumonia, in whom that is the only or predominant organism, is difficult to assess, since this organism is a common saprophyte found in the mouth; it almost invariably appears in sputum or throat cultures in patients under treatment with sulfonamides, and often after antibiotic therapy. The demonstration of strains of this organism in cultures of blood and pleural fluid of occasional patients with pneumonia has been reported; so its pathogenic role may be accepted. Strains of this organism vary in their sensitivity to penicillin, to the broad-spectrum antibiotics, and to erythromycin. Penicillin in large doses may be effective in some cases, but aureomycin and terramycin might be expected to be more effective. There is no experience with erythromycin in pneumonias due to these organisms, but the same is true of the other antibiotics as well.

Other streptococci, as well as organisms of the coli-aerogenes group, and proteus or pyocyaneus organisms may all cause pneumonia, but probably do so only very rarely. They are, however, encountered as superinfections following treatment in cases of pneumonia due to the more common respiratory pathogens, when the lesions have not been cleared by chemotherapy. If treatment is then changed to an agent which is effective against the new invader, these organisms are then sometimes cleared. However, the patient is frequently in poor general condition or even in a terminal state at that time, and little benefit may result under such circumstances. It is, therefore, imperative to study the sputum and blood of patients with pneumonia when they do not respond favourably to the chemotherapeutic agent employed, or when new lesions develop in the course of treatment, in order to determine if such new organisms may be responsible, and then to change the therapy accordingly. Such changes in treatment, however, should not be given merely because different organisms are seen in the sputum or reported in culture; there should be reasonable evidence that these organisms are, or may be, responsible for the failure of the previous treatment and for the progressive disease.

There are also occasional cases of acute pneumonia having a clinical picture not unlike that of pneumococcal pneumonia, but in which tubercle bacilli are found in the sputum only during the acute disease. Such a pneumonia may clear without any specific therapy, and an underlying tuberculous infection in the lung or elsewhere may later become evident. If the tuberculous etiology is recognized during the acute stage, prolonged treatment with streptomycin and para-aminosalicylic acid should be started at this time. Such therapy may then be expected to prevent the later appearance or spread of tuberculous lesions elsewhere.

A number of additional bacteria which are usually associated with systemic infections, or with local infections either in the respiratory or other organs, may give rise to pneumonia. In pertussis, in typhoid fever or other salmonella infections, in meningococcal infections or occasional cases of brucellosis, a complicating pneumonia may be caused by other respiratory pathogens; but the causative organism of the underlying disease can sometimes be found in the sputum, and its causal relation to the pulmonary lesion cannot be ruled out. The use of appropriate antibacterial therapy directed against the primary disease is usually effective against the pneumonia as well. This is not always helpful in delineating the causal agent of the pneumonia, which may be a different organism but equally susceptible to the agent being used in the treatment. Tularemia or plague, however, may produce a primary pneumonia; each of these infections is susceptible to streptomycin, and perhaps even more so to aureomycin or terramycin. However, because of the destructive nature of the pneumonic forms of these infections, prolonged therapy is indicated.

Finally, there may be cases of pneumonia in which more than one pathogenic organism is obtained from cultures of sputum and occasionally from blood or purulent foci. In most instances only one of the strains will be primarily involved, but some cases may be genuine 'mixed' infections. It may be possible to determine which of the organisms is the primary or significant invader. From the therapeutic point of view, it is now possible to select the antimicrobial agents so as to include those effective against all of the organisms which may be involved.

FUNGAL INFECTIONS

A number of fungal infections, some of which are listed in the table, are associated with pulmonary lesions—either as their only important manifestations or as part of a systemic infection. Under some circumstances, the pulmonary involvement may be acute and may simulate pneumonia. The recognition of the true causative agent in such cases requires: (1) an awareness of the possibility of their occurrence; (2) a careful epidemiologic history to circumscribe the possible sources and nature of the organism; and (3) either the identification of the organism from tissue sections, sputum smears, or cultures, or by demonstration of the development of a specific cutaneous reaction or serologic response.

Details of the individual disease entities are beyond the scope of this paper. Mention need only be made, in relation to moniliasis, that such a diagnosis is not usually justified merely by the demonstration of a characteristic organism in smears or cultures of sputum, particularly in patients under treatment with antibiotic agents. Genuine cases of moniliasis of the lungs are extremely rare, the relation of the monilia to the pulmonary lesions not having been established in the great majority of reported cases. It may also be stated that there is at present no specific therapy generally accepted as highly effective in any of the fungous diseases. However, large doses of penicillin and sulfadiazine have proved beneficial in many cases of actinomycosis, and there is recent evidence suggesting that stilbamidine may be effective in North American blastomycosis and in an occasional case of actinomycosis. This, however, is a toxic drug and should be used with caution.

PARASITIC DISEASES

What has been said about fungal infections is true, to a large extent, about parasitic diseases. A partial list of such diseases, in which pulmonary lesions associated with acute signs and symptoms have been described, is given in the table. Many of these diseases are associated with eosinophilia, and this may be quite marked. In India and in South-east Asia, the so-called tropical eosinophilia has been associated with many known parasites, and even mites have been described in the sputum of such cases; such sputum, when available, also contains numerous eosinophils. Some cases of tropical eosinophilia associated with pulmonary infiltration, and in which known parasites have not been implicated, are said to respond dramatically to arsenical therapy.

In amebiasis, symptoms simulating pneumonia with pulmonary signs may be associated with extension through the diaphragm of an hepatic abscess to involve the pleura, lung, and pericardium; and an abscess of the lung may result. Specific treatment in such cases is the same as for hepatic amebiasis. Malaria is sometimes associated with signs and symptoms of pneumonia; but it is essential in this disease and in other parasitic diseases to ascertain first whether or not there is an accompanying bacterial infection of the lung which, if found, should also be treated specifically, depending on the bacterial agent involved.

VIRAL AND RICKETTSIAL PNEUMONIAS

The only well-established viral and rickettsial agents which give rise to pneumonia as their sole or major manifestations of significance in man are the influenza viruses, viruses of the psittacosis-ornithosis group, and the rickettsias of Q fever. However, except during epidemics or pandemics of influenza, the most prevalent and important of these non-bacterial pneumonias are probably the so-called primary atypical pneumonias; these are the ones generally referred to as 'virus' or 'viral pneumonias'. These pneumonias are undoubtedly due to filtrable agents; however, although many such agents have been reported, not one has been firmly and incontrovertibly established.

Clinically and pathologically, all the viral and rickettsial pneumonias may be indistinguishable in so far as the lesions in the lungs are concerned, and in regard to the signs and symptoms that are referable to those lesions. There may be variations in extent and severity, and minor differences in the tissue responses. Anatomically, the lesion is primarily in the interstitial tissues where there is edema and infiltration with mononuclear and plasma cells. Polymorphonuclear cells are rare, except perhaps in the early stages; but they are often found in the bronchial lumens in the later stages. Fibrin is usually scant except in some cases of psittacosis and Q fever. The alveolar lining epithelium becomes swollen and spindle-shaped, and an alveolar exudate eventually forms which consists of monocytes, histiocytes, lymphocytes, and alveolar lining cells. Edema and hemorrhage of varying degree may be present in the fulminating cases of influenza, and occasionally in primary atypical or other viral pneumonias. The tracheobronchial epithelium is spared except in some cases of influenza where this epithelium may be desquamated in some areas. There are also areas of atelectasis which, if extensive, may also be associated with areas of emphysema in other parts of the lung. Inclusion bodies have only very rarely been seen in the lungs of an occasional case of human psittacosis, but not in any other established viral disease of the lung.

The symptoms are those of severe cough, increasing dyspnea, presternal distress or soreness, severe headache, and chilly sensations or repeated chills—but not usually a single severe chill. The sputum is usually scant until the latter part of the illness; it is mucoid at first and may later become purulent; bloody sputum is infrequent except in some of the fulminating cases. Mononuclear cells are seen in smears, and bacteria are scarce or not found. Pleuritic pain is present only in occasional cases, but presternal pain is frequent. Physical signs in the lungs may be absent for several days; moderate dullness and showers of rales are the major physical findings, and signs of consolidation are rarely made out except in patients who develop large areas of atelectasis. Pleural effusions are rare. Herpetic lesions are also rarely seen, in contrast to their frequent occurrence in bacterial pneumonias. X-ray films of the chest characteristically show miliary nodular areas of only slight or moderate density except where there are areas of atelectasis which, if they become confluent, give the appearance of solidification. The white blood count is usually normal or low, and there is no polynuclear predominance except late in the disease, when there may be a leucocytosis; at these times there is usually a bronchitis with purulent sputum. There are deviations from this picture, some of which will be noted under the specific diseases.

Pneumonia and the Influenza Viruses. There is always a significant and often a marked increase in the number of cases of pneumonia and of deaths from pneumonia during epidemics of influenza. Most of these pneumonias are due to bacteria, but studies in recent years have indicated that at least one half or more of the cases of bacterial pneumonia which occurred during influenza epidemics had infections with the epidemic strain of influenza virus either at the same time or within the preceding few days. This was evidenced both by the isolation of the virus and by the demonstration of specific antibodies against that virus during convalescence. In patients dying of pneumonia at such times, influenza A and B viruses have been isolated from the lungs which have shown histologic evidence of both the viral and the bacterial infections. In occasional cases, however, even in the absence of specific antibacterial therapy, no evidence of bacterial infection was found. Influenza viruses have been isolated from such cases, and the pathological findings in fatal cases are consistent with those of the purely viral infection.

The bacterial pneumonias complicating influenza may themselves be indistinguishable from similar pneumonias not associated with influenza viral infections. In some instances, however—particularly when the staphylococcus is implicated—the disease may have a rapid or fulminating course, with early development of edema, haemorrhage and peribronchial areas of necrosis, clumps of stapylococci being found primarily in such areas. These findings have been observed with influenza A and B strains, but are probably also to be observed with the A^1 and the recently described Type C strain.

The diagnosis of influenza viral pneumonia can be suspected and established readily during epidemics, by isolation of the virus from sputum or throat washings or by demonstrating a rise in antihemagglutinins or complement-fixing antibodies for the specific virus in convalescent serum as compared with the titers found in acute phase samples. Sporadic cases can be suspected only if they are of the fulminating variety and if materials are promptly collected for viral studies. The relative role of the viral and bacterial agents is difficult to delineate clinically. There is no specific treatment for the influenza viral infection itself, but the complicating bacterial pneumonias respond to antibacterial therapy in the same manner as similar cases not associated with influenza virus.

Psittacosis (Ornithosis). Psittacosis was first recognized as a severe pneumonia having a typhoid-like picture, and as being transmitted from sick parrots to man. It may occur in epidemics among persons exposed to sick birds, either single ones or large numbers of them, as in aviaries. In recent years, microorganisms indistinguishable from those found in parrot fever have also been recovered in many parts of the world from a great variety of species of both wild and domestic birds, including barnyard hens and pigeons; and human infections transmitted from such birds to man have been recorded.

The causative organisms are large viruses related to the agents of lymphogranuloma venereum and of trachoma. They have all recently been classified in the Family *Chlamydozoaceae*, and the psittacosis organisms have been included with other species that are cultivable in chick embryos under the Genus *Myagawenella*. A number of species in this genus have also been found in mice and cats, and spontaneous infection of young kittens with these agents has been reported.

The human disease has almost been traced to contact with sick birds, but person-to-person spread of a severe infection due to one of these viruses, and having a high mortality, has been noted. The disease is usually of more than moderate severity, and is often associated with large areas of atelectasis and consolidation of the lung. It has a mortality of 10-30 per cent in patients treated symptomatically without antimicrobial therapy.

Infections of embryonated eggs with the psittacosis group of viruses are variably affected by sulfadiazine and penicillin, but are all quite susceptible to treatment with aureomycin and terramycin and, to a less extent, also to chloramphenicol. Sulfonamide drugs have not been very helpful in the human disease, but penicillin in large doses has proved beneficial in some cases. The response of human cases to penicillin is usually much less striking than in pneumonias due to susceptible bacteria. Aureomycin, in the few available reports, has proved much more effective in the human disease; it has been given in divided doses totalling 2 to 4 grams a day. Terramycin may also be expected to have a similar beneficial effect.

Other Viruses. There are other known viruses that may produce lesions in the lungs of appropriate animals inoculated intranasally or intrabronchially, but the only ones that have been identified definitely in human cases of pneumonia are those of lymphocytic choriomeningitis and of smallpox—the former, in a few fatal cases, associated with lesions of the central nervous system and the skin; the latter, in severe cases of smallpox. In some cases of smallpox there may also be secondary infections with bacteria in both the cutaneous and the pulmonary lesions, and such cases may be greatly benefitted by the appropriate antibacterial agent; staphylococcus is one of the important secondary invaders in these lesions. There is no specific treatment for lymphocytic choriomeningitis or for smallpox.

There are additional cases in which known viral agents have

been considered as the cause of pneumonia, but either the relation of the agent to the human disease has not been fully established (as in the case of the feline pneumonitis virus) or the evidence for the presence of the significant pulmonary lesion was incomplete (as in the case of the virus of lymphogranuloma venereum). These two viruses are species of *Myagawenella* and are susceptible to aureomycin and terramycin and, to a less extent, also to chloramphenicol.

Measles, chicken pox, and pandemic influenza (of the 1918 variety) are undoubtedly of viral etiology, but the offending viruses have eluded investigators; they have not been isolated nor transmitted to non-human hosts and cannot be used in serologic tests. Pneumonia occurring in these diseases may be predominantly of bacterial origin, but in some cases there are extensive pulmonary lesions without any significant bacterial incitant being identified in blood or sputum during life, or in the pulmonary lesions at autopsy. The pulmonary lesions are similar to those found in other viral pneumonias, and none of the known antimicrobial agents may be expected to have any great effect. However, the appropriate antibacterial agent—used early and intensively—may be expected to be highly beneficial and life-saving to the extent to which the bacteria are causally involved in the pneumonia. The same is true of the cytoplasmic inclusion pneumonia of infants.

Primary Atypical Pneumonia ('Viral Pneumonia'). As previously noted, this may be numerically the most important of the non-bacterial pneumonias, particularly in adolescents, in young adults, or during seasons when the disease is unusually prevalent. Clinically, the picture in mild cases blends with that of cases of simple acute upper-respiratory-tract infections or acute tracheobronchitis in which there is no demonstrable lesion in the parenchyma of the lung and no bacterial incitant can be implicated. In severe cases there may be extensive infiltration throughout both lungs, and all intermediate grades are observed. The characteristic clinical picture has been described above.

The diagnosis is often difficult to make in the early stages, since recognizable signs in the lungs may be absent for several days and even after the characteristic mottled or nodular lesions of the lungs are easily seen in the X-ray. The establishment of this diagnosis depends on: (1) the exclusion of bacterial or other identifiable causes, though this may be quite difficult in many instances, even in retrospect; (2) the development of the characteristic clinical picture, including the physical and X-ray findings in the lungs; and (3) the demonstration, at least in cases of moderate or greater severity, of a rise in the titer of cold agglutinins in the serum or plasma, usually after the middle of the second week following the onset.

It is generally agreed that the sulfonamides and penicillin are entirely without effect in this disease except for the treatment of secondary bacterial infections, which are quite uncommon during the early stages of the disease. Although there is not universal agreement with respect to the efficacy of antimicrobial therapy, most observers have found that aureomycin is highly effective in cases of moderate or greater severity when used in doses of 2 to 4 grams a day; and even doses of 250 mg., given every 4 or 6 hours, have been found to give highly satisfactory results. With this treatment, the temperature and acute symptoms usually subside within 24 to 48 hours after the first dose. Relapses have been observed, particularly when treatment was begun early and discontinued too soon. Aureomycin should therefore be continued until the patient has been afebrile and free from symptoms for 3 to 5 days. Terramycin is probably also equally effective, although reports of its use are few.

RICKETTSIAL PNEUMONIAS

Almost any one of the known rickettsial diseases may present itself in the early phases with symptoms, signs, and roentgenographic findings in the lungs simulating those of primary atypical pneumonia. The early clinical diagnosis depends upon the awareness of the possibility of the disease, largely from the epidemiologic circumstances; but it is usually suspected only after some characteristic cutaneous lesion appears when that is a feature of the disease. The definitive diagnosis depends upon isolation of the rickettsias from the blood, or more usually by serologic tests which demonstrate a rise in complement-fixing or agglutinating antibodies specifically for one of the rickettsias, or by a rise in the titer of specific proteus agglutinins in the Weil-Felix reaction. Cases have been noted particularly in epidemic typhus (including the recrudescent form, or Brill's disease), endemic typhus, Rocky Mountain spotted fever, Boutonneuse fever, and South African tick fever.

Q Fever. The rickettsial infection which is more specifically associated with pneumonia is Q fever. In Australia, where the disease was first described and its etiology established, the clinical picture was said to resemble that of influenza; pulmonary lesions were not noted there. In American Q fever, however, pneumonia was the primary and significant lesion in the earliest cases to be recognized—both in those occurring spontaneously and in those acquired from laboratory contacts. In the Balkans and other Mediterranean and European countries, the same was true: that is, pneumonia was the first lesion in which the Q fever rickettsia was identified as an incitant, although prior to the identification of this specific etiologic agent it is supposed to have been associated with a severe influenza-like infection (Balkan grippe). In this country the disease has been endemic in the northwestern states, and has been widespread in California. It has occurred in epidemics among people handling or exposed to livestock or their products, and there have also been several laboratory outbreaks. Both in this country and in Australia, human cases have been encountered in certain areas where the rickettsias of Q fever have been demonstrated in ticks.

The pneumonia in Q fever may be severe and prolonged and accompanied by marked prostration; otherwise it resembles other forms of atypical pneumonia and psittacosis. As already noted, the diagnosis is rarely suspected except under proper epidemiologic circumstances. Because of the very marked infectivity of the agent when it is used in the laboratory, the diagnosis by isolation from blood or sputum should not be attempted except by those who are properly equipped for the purpose and have taken the necessary protective measures. The diagnosis can be established retrospectively by the demonstration of a rise of specific complement-fixing antibodies in the serum during convalescence. When a diagnosis of Q fever has been made in a patient, by the routine use of such a diagnostic test in general surveys of pneumonia patients, it has usually been possible to ferret out either an exposure in a laboratory where the virus is being handled, or some association with infected livestock.

All of the rickettsial infections are susceptible to aureomycin and terramycin when used in doses of 2 to 4 grams a day, or to chloramphenicol in doses of 3 to 4 grams a day. The rapidity with which fever and acute symptoms respond to treatment with these agents varies somewhat in the different diseases, but improvement is usually evident and often quite marked within 24 hours after treatment is started. Occasional cases of Q fever, however, continue to have evidence of active infection during prolonged periods of treatment. Relapses of fever and symptoms may occur in patients in whom treatment was begun early in the course of the disease and discontinued too soon; such cases, however, respond again in the same satisfactory manner when the same treatment is resumed.

MISCELLANEOUS ACUTE PULMONARY LESIONS

There are a number of special forms of acute pulmonary lesions associated with signs and symptoms simulating those of specific infectious pneumonias; some of them are listed in the table. It is highly important to suspect and recognize them, either because it is often possible to remove the causative agent or because one may thus obtain a clue to a serious underlying disease.

Loeffler's Syndrome. This consists of transient or migrating pulmonary infiltrations with eosinophilia, and is now generally recognized as being allergic in origin, although the inciting agent is generally unknown. It is distinguished from tropical eosinophilia, which is almost always associated with parasitic infestation. Eosinophils are present in the peripheral blood and in the pulmonary lesions—at least, eosinophils are found in abundance in the sputum unless there is an accompanying bacterial infection in addition. In the latter event, treatment with a specific antibacterial agent will change a polynuclear leucocytosis into an absolute eosinophilia in the peripheral

blood, and eosinophils will rapidly replace most of the pus cells in the sputum. Variable results are reported from the use of the antihistaminic drugs in this disease, but ACTH and cortisone have produced beneficial effects in some reported cases of Loeffler's syndrome. They would not be expected to benefit the tropical eosinophilias and, indeed, may be harmful in parasitic infestations.

Rheumatic pneumonia usually accompanies other more characteristic manifestations of rheumatic disease. During acute rheumatic fever, the presence of physical signs or X-ray evidence of scattered pulmonary infiltrations or large areas of consolidation, when associated with fever, dyspnea, and often with bloody sputum, must be attributed to the rheumatic disease unless specific respiratory pathogens are readily obtained from the sputum or blood or are indentified by serological reactions in the blood. Pulmonary infarcts and pulmonary congestion due to cardiac failure may simulate rheumatic pneumonia, and may be difficult to differentiate from it. The rheumatic pulmonary lesions are usually transient, and they clear as the rheumatic activity subsides. The rheumatic pneumonia is not affected by any antimicrobial agents. Symptomatic improvement may result from the use of ACTH and cortisone, although this is not invariably true.

Inhalation Pneumonias. The reaction to the inspiration of oily substances may give rise to acute symptoms and pulmonary infiltrations which may later become chronic and granulomatous. The early recognition of the cause, and the prompt application of measures to prevent further inhalation of the offending agent, are the most important steps to take in order to avoid serious chronic disability. The same is true of other inhaled chemicals, which may produce acute exudation in the lung along with laryngotracheobronchial irritation. The prevention of infection, in such cases, by isolation of the patient or by the use of antibiotics when necessary, is important in order to minimize the damage in the lung until repair takes place; but removal of the irritant is of primary importance. Some inhaled foreign bodies may result in the rapid development of pulmonary infiltration, and early necrosis of the bronchi and surrounding pulmonary tissue may ensue. This may be due, in part, to mixed infections with bacteria carried down with the foreign bodies. Some relief may be obtained by chemotherapy in so far as infection plays a role, but removal of the foreign body—usually through a bronchoscope—is essential in order to effect a cure and to avoid further damage.

Pulmonary Hemosiderosis. This is a rare condition that has been observed primarily but not exclusively in children. It is associated with recurrent episodes of chills, fever, cough, and the rapid development of anemia. There may be hemoptysis and hematemesis, and occasionally abdominal pain. Physical signs may be negligible or completely absent, but the X-ray findings may be very striking and may simulate those of miliary tuberculosis. The episodes occur at irregular intervals, and the disease is almost invariably fatal. It is readily recognized as soon as the diagnosis is suspected. The cause is unknown, and no effective treatment is available.

SUMMARY AND COMMENTS

Pneumonia may be caused by a large variety of agents. The etiology of many primary cases can be suspected from data in the history, from epidemiologic considerations, and from physical and X-ray findings in the lungs. In the bacterial pneumonias, the diagnosis is established by isolation of the specific inciting agent. In some of the viral and rickettsial pneumonias, the causative agent can also be isolated, but for the most part the diagnosis in these cases is retrospective and depends on the demonstration of a rise in the specific antibody in the sera during convalescence. Pneumonia may also be an integral part, or an early and major manifestation of, systemic infectious diseases due to bacteria, viruses, fungi, or parasites, and of some diseases not considered to be primarily infectious. Finally, pneumonia—particularly pneumonias of bacterial origin—may occur as complications of other serious diseases or infections.

Specific treatment is available against the bacterial pneumonias, and is highly effective in almost all instances—particularly when it is properly chosen, started early, and maintained until the active stage of the infection has been well passed. In infections associated with necrosis in the lungs or with early development of focal purulent complications, antimicrobial therapy should be continued until these necrotic areas or purulent foci have become healed or well stabilized.

The sulfonamide drugs are effective chiefly in pneumococcal pneumonia; but penicillin is probably the drug of first choice in these cases, in hemolytic streptococcal pneumonias, and in staphylococcal pneumonias, if the organisms are susceptible. Erythromycin (Ilotycin) may also prove to be highly effective in the pneumococcal and hemolytic streptococcal infections. The broad-spectrum antibiotics—particularly aureomycin and terramycin—are also as effective as penicillin in all of these cases, and in addition are the drugs of first choice in pneumonias due to gram-negative bacilli; but streptomycin may also be effective in the latter cases. The broad-spectrum antibiotics are, at the present time, the only highly effective drugs in psittacosis and related viral infections, in all rickettsial infections, and in primary atypical pneumonia. Because chloramphenicol has been implicated as the cause of many fatal cases of aplastic anemia, this agent is reserved for use only in severe cases due to sensitive organisms, and in which none of the other antibiotics is effective or is not tolerated.

There are no specific agents which are effective against pneumonia due to other known viruses, although the bacterial pneumonias complicating such viral infections may be as susceptible as primary pneumonias in which the same bacteria are causative. The treatment of fungal, parasitic, and miscellaneous forms of pneumonia is directed against the specific cause in each instance.

MEDICO-LEGAL

CONSENT TO OPERATIVE TREATMENT

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The case of B *vs.* Dr. R and H, heard recently in the Supreme Court of South Africa, Transvaal Provincial Division, deals with some of the duties imposed by law on doctors before operating, and what constitutes consent in law to operative treatment.

The facts of the case were as follows:

A patient suffering from 'neurosis' was admitted to a clinic. There he received shock therapy. The day the patient left the clinic he consulted another doctor who made a diagnosis of fracture-dislocation of the left humerus. The patient sued the doctor who had administered the electroconvulsive therapy and the owner of the clinic for £1,000 damages.

Several points of importance arise in the judgment of Neser, J., relating to the doctor–patient relationship. The first point the learned judge considered was the question of consent to the treatment.

In law, any intentional application of force to the person of another, unless excused by some legal reason, is an assault. This would bring any application of force at all, for medical purposes into the category of assault, and would include even the most minor application of force to the person of another, such as a hypodermic injection. What then takes surgical procedures out of the category of assault and makes them legal? The legality of the act is created by the consent of the patient, expressed in the legal maxim, *volenti non fit injuria.*

Consent to an assault, e.g. a surgical procedure, has a wider meaning in law than the ordinary meaning of the word. Consent in its legal sense has 3 elements: (a) knowledge of

the intended act, (b) an appreciation of its scope and probable consequences and (c) a voluntary acceptance of any risk associated with the act. Mere consent to the performance of any operation is insufficient. Knowledge by the patient, alone, is insufficient. He must have an appreciation or realization of the nature of the operation, and any probable risk, and it is further necessary that the patient must voluntarily elect to run whatever risk there is.

This does not mean that a doctor must explain any and every risk however remote. But if any treatment carries a risk inherent in it, that risk must be explained to the patient. To protect himself a medical practitioner should inform the patient of any probable risk the patient takes in undertaking treatment. In every case it should be left to the patient to decide if he wishes to have the treatment. As the learned judge states: 'I have to consider, firstly, did the plaintiff consent to shock treatment, secondly, was he informed of the risks of giving him such treatment, and, thirdly, if he was not informed was it first defendant's duty to inform him.'

The defence of *volenti non fit injuria* throws a difficult *onus* on the medical practitioner as the facts of the case will show. On the facts the court accepted that the patient and doctor had discussed shock treatment. This was accepted as consent to shock treatment. The court next considered the question whether the patient was warned of the risks of injury. Without warning of any risk associated with treatment it is not possible for the patient to have appreciated the risk, and appreciation of the risk is an essential element in the defence of *volenti non fit injuria*. Mere knowledge by the patient that he is to undergo an operation or treatment is not the same as appreciation of its extent. If the patient knows of the danger and comprehends it the third element of the defence, i.e. voluntary acceptance of the risk, will generally be inferred. But if there is no comprehension nor appreciation of any risk in treatment the patient cannot voluntarily take the risk upon himself.

In his judgment the learned judge states: 'There is no doubt that a surgeon who intends operating must obtain the consent of the patient . . .: in a case of this nature, which may have serious results to which I have referred, I have no doubt that a patient should be informed of the serious risks which he does run. If such dangers are not pointed out to him then, in my opinion, the consent to the treatment is not in reality consent; it is consent without knowledge of the possible injuries.'

Because the medical practitioner did not inform the patient of the possible dangers, and because the patient did not have any knowledge of the risk associated with treatment, the court held that the patient had not consented to shock treatment and gave judgment against the doctor.

When the question was dealt with whether the nursing home was also liable, very different points of law arose. This turned on whether the doctor was a servant of the nursing home. A servant in law is one who is subject to the orders and control of his employers, not only as to the work which he is to do, but also as to the manner in which it is be done. As such, the court found the doctor in this case was not the servant of the nursing home, and thus the nursing home was not responsible for damages. In different circumstances it might well have found the doctor to be a servant and in those circumstances the employer would be liable.

If the nursing home had been negligent, or any of its servants, then the patient would have had a claim against the nursing home on the grounds of its negligence or the negligence of its staff in performing their duties.

The court found that though it was possible the nursing staff had been negligent, on a balance of probability negligence was not established and so the claim against the nursing home failed; but it found proved that the doctor had been negligent.

Two other points of importance to the medical profession arose in this judgment. The first was, on whom does the responsibility lie of obtaining consent from the patient for treatment? Neser, J., held that it lay on the doctor. The learned judge says: 'In the present case it is the psychiatrist who does the operation, and it is he who must obtain the consent of the patient to the assault.' Of course, it is perfectly in order for anyone on the staff to obtain the consent of the patient on behalf of the surgeon, but it is the surgeon's responsibility to see that consent has been obtained and that the nature of the operation has been made clear to the patient.

The other point dealt with was the question of operating in a theatre with insufficient nursing staff in attendance. The judge held that to operate with insufficient nursing staff would amount to negligence on the part of the doctor and he says: 'First defendant (i.e. the doctor) would be liable in that event for not having taken steps to have an adequate number of nurses.' This is a clear warning to doctors to refuse to operate in an inadequately staffed theatre.

ASSOCIATION NEWS : VERENIGINGSNUUS

ANNUAL REPORT OF THE CHAIRMAN OF FEDERAL COUNCIL FOR THE YEAR ENDED 30 JUNE 1953

Obituary. It is with deep regret that we have to record the loss through death of the following members: Dr. B. N. Bridgman, Dr. E. B. Brooke, Dr. W. Campbell, Dr. W. A. Carden, Dr. W. E. Colahan, Dr. Z. J. de Beer, Dr. G. W. Ellacombe, Dr. R. Friel, Dr. L. Fourie, Dr. J. H. R. Gluck, Dr. A. W. Goldsmith, Dr. P. C. St. L. Grenfell, Dr. W. H. Haupt, Dr. A. J. Ireland, Dr. R. F. Johnstone, Dr. C. H. Kruger, Dr. S. W. T. Lee, Dr. N. Matsukes, Dr. H. W. Maurer, Dr. W. W. McCowat, Dr. P. C. McNeil, Dr. H. A. Moffat, Dr. M. G. Pearson, Dr. N. Pencharz, Dr. H. W. J. v. H. Scholtz, Dr. R. L. Scott, Dr. J. K. K. Stielau, Dr. N. A. Stutterheim, Dr. J. Taussig, Dr. D. van der Merwe, Dr. N. Wall-Mesham, Dr. R. J. Xaba and Dr. L. S. V. Zinober.

Membership. During the past year there has been an overall increase in membership of 427, the total membership now being 4,844. In addition, there are 129 student members.

Members are distributed among the various Branches as follows: Border Branch, 191; Cape Eastern Branch, 52; Cape Midland Branch, 189; Cape Western Branch, 1,057; East Rand Branch, 205; Griqualand West Branch, 94; Natal Coastal Branch, 454; Natal Inland Branch, 165; Northern Transvaal Branch, 432; Orange Free State and Basutoland Branch, 315; Southern Transvaal Branch, 1,286; South West Africa Branch, 56; Transkei Branch, 83; Unattached members, 265; Emeritus members, 13; Honorary members, 6.

Honours. During the year the Council honoured Dr. A. W. S. Sichel by the award of the Association's Gold Medal for Distinguished Services. The Association's Bronze Medal was awarded to Dr. T. Shadick Higgins and Dr. James Black. The Hamilton-Maynard Memorial Medal for 1952 was awarded to Professor Frank Forman of the University of Cape Town for his paper entitled 'Thyroid Disease: The Use of the Fertile Hen's Egg in its Diagnosis'. The Leipoldt Memorial Medal for 1952 was awarded to Dr. M. Glass of Cape Town for his paper entitled 'Duplication of the Maxillary Antrum: Symptomatology, Diagnosis and Treatment'.

Emeritus Membership. The Council has honoured Mr. W. Lennox Gordon of Cape Town, Dr. A. G. H. Hay-Michel of Cathcart, Dr. H. Kramer of Cape Town, Dr. T. P. Oates of Port Elizabeth, Mr. T. Lindsay Sandes of Cape Town and Dr. F. H. Welsh of Pretoria by election to Emeritus Membership of the Association.

Federal Council Meetings. The Council has met on 2 occasions during the year under review. Both meetings were held in Johannesburg. The first took place during the week preceding the South African Medical Congress and lasted for 2 days, 18 and 19 September 1952. An adjourned meeting was held on 27 September 1952. The second meeting lasted 3 days, 26–28 March 1953. The average attendance at the meetings was 41.5.

The Executive Committee has met on 3 occasions, 2 of these being before Federal Council meetings. The third meeting was of a special nature and was held in Cape Town

on 6 December 1952. The major portion of the work of this Committee is conducted by correspondence.

The Annual General Meeting was held in Johannesburg on 22 September 1952 and Dr. L. I. Braun was installed as President by Dr. R. Theron. The usual formal business was also transacted.

Congress. The very successful 38th South African Medical Congress was held in Johannesburg during the week 22–27 September 1952. Numerous papers were read contributing to the progress of medicine and a pleasant social programme was enjoyed by some 800 members. The Association's thanks are due to the members of the Southern Transvaal Branch, who were our hosts on this memorable occasion.

Committees of Council. The Head Office and Journal Committee continues to render service in looking after the administrative and financial affairs of the Association. The Federal Ethical Committee has completed its task of reviewing the rules for procedure in ethical cases and the revised rules have been passed by the Council.

The Central Committee for Contract Practice is kept busy with applications for approval from new Medical Aid Societies and the considerable amount of routine work which falls to it in its supervision of this form of practice.

The Parliamentary Committee has continued to watch the interests of members so far as legislation is concerned and has taken up with the legislature or the Government Departments concerned such matters as have been brought to its notice.

A number of sub-committees of Council are doing useful work in the special spheres allocated to them.

Journal. The weekly publication of the *South African Medical Journal* continues to meet with success and the *South African Journal of Clinical Science* continues to be published quarterly. Dr. H. A. Shapiro resigned his position as Editor of both Journals and Dr. T. Shadick Higgins was appointed as from 1 April 1953. The Association is grateful to Dr. Shapiro for the valuable service he gave during his term of office.

Branches and Divisions. The Branches continue to hold regular meetings in most cases although lack of support has led to the dissolution of the Orange River Branch, the members of which have been divided between the Border Branch and the Orange Free State and Basutoland Branch.

Groups. No new groups have been recognized and the Ex-Service Medical Officers' Group has been dissolved. This was formed only for the purpose of assisting in the rehabilitation of ex-servicemen and successfully fulfilled its object. The thanks of the Association are due to those members who assisted so ably in this work.

World Medical Association. The Sixth General Assembly was held in Athens in October 1952 and the Association was represented at that meeting by the Immediate Past President, Dr. R. Theron of Bloemfontein and his wife, Dr. Emilia Krause.

Provincial Hospitalization. Generally conditions are quiet in the 4 Provinces. The terms of the Interim Suspension Ordinance in the Cape have been prolonged indefinitely. The Report of the Commission appointed in Natal has not recommended any serious changes and has supported the principle of honorary appointments to the hospital staffs. No change has apparently been contemplated in the Orange Free State. In the Transvaal feeling is divided at present on the subject of a return to the honorary system, but the Association's representatives are in close touch with the situation in all its aspects.

Finance. The funds of the Association were decreased at the end of 1952 by a loss on the year's working of £1,578. Although the capitation rate has been increased by 11s. it is expected that there will be a further loss at the end of the current year owing to increased working costs. At its meeting in April 1953 the Federal Council appointed a Committee of Inquiry to consider the affairs of the Head Office and Journal and to report on them. It is hoped that the recommendations of the Committee may have far-reaching effects.

Benevolent Fund. There are now 18 beneficiaries of this Fund and during 1952 an amount of £2,073 was paid out in benevolence. The Accumulated Funds now stand at £35,643.

Library Grants. Grants of £250 each were made to the Universities of Cape Town and the Witwatersrand during the year and members are reminded that both libraries are at their service either by personal visit or postal enquiry. The National Library and Archives of the Association, founded by the Northern Transvaal Branch, continues to receive support.

Medical Agencies. The agencies conducted by the Association in Cape Town, Johannesburg and Durban are all making satisfactory progress and members are reminded that the agencies exist only for their assistance and are urged to make use of the facilities offered.

Medical Insurance Agency. The work of this agency continues to grow. Members are finding that it is folly not to be protected in their practices by adequate cover afforded through the special Doctors' Liability Policy arranged by the Association. They are also becoming more aware of the considerable savings to be effected by the special motor car insurance policy which has been arranged. In addition a certain amount of life and other insurance is being arranged for members with mutual benefit to them and the Association. Members are urged to make more use of the advice and facilities offered and are reminded that the activity of this agency adds to the Association's funds by means of commissions earned.

Conclusion. The Council would record its appreciation of the work of the Head Office and Journal staff and of all the honorary officials and Committees of the Association.

A. W. Sichel,
Chairman.

PASSING EVENTS : IN DIE VERBYGAAN

UNION OF SOUTH AFRICA : DEPARTMENT OF HEALTH

BULLETIN NO. 30 OF 1953, FOR THE 7 DAYS ENDED THURSDAY, 23 JULY 1953

PLAGUE

Nil.

SMALLPOX

Transvaal. One (1) Native case on the Westfalia Estate in the Letaba district.

TYPHUS FEVER

Natal. One (1) Native case near the Ebenezer Mission Station in the Alfred district. Diagnosis based on clinical examination only.

Transvaal. No further cases have been reported from the Wakkerstroom district since the notification in Bulletin No. 26 of 25 June 1953. This area is now regarded as free from infection.

Cape Province. No further cases have been reported from the Rolwenis location in the Matatiele district since the notification in Bulletin No. 25 of 18 June 1953.

No further cases have been reported from Redoubt in the Bizana district since the notification in Bulletin No. 27 of 2 July 1953.

The above 2 districts are now regarded as free from infection.

EPIDEMIC DISEASES IN OTHER COUNTRIES

At date of latest available information there existed:

Plague in Phanthiet (Vietnam).

Cholera in Calcutta (India); Chalna (Pakistan).

Smallpox in Bombay, Calcutta, Delhi, Kanpur, Madras, Masulipatnam, Nagapatinam (India); Lahore (Pakistan); Haiphong, Hanoi (Vietnam); Pusan (Korea).

Typhus Fever: Nil.

UNIVERSITEIT VAN PRETORIA

UITSLAE HEREKSAMENS M.B., CH.B. VI—JUNIE 1953

Onderhewig aan bekragtiging van die Raad van die Fakulteit van Geneeskunde, word voorlopig aangekondig dat die volgende kandidaat aan die vereistes vir die M.B., Ch.B.-graad voldoen het:

Van der Merwe, Andries Johannes.

CORRESPONDENCE

DIAGNOSIS OF ASEPTIC MECHANICAL UPPER URINARY OBSTRUCTION

To the Editor: The frequency with which upper urinary mechanical obstruction occurs is much more common than supposed. Unless sepsis is associated with the condition the diagnosis cannot be made except for a chance intravenous pyelogram; that is, by the ordinary recognized methods of investigation.

The symptoms of Deitl's crisis simulate so many other conditions where vomiting occurs that it is often a long time before it is diagnosed unless a palpable kidney is present, or a chance blood urea is estimated, when there will usually be a rise above the normal.

Some of my colleagues are familiar with the fact that I have been carrying out clinical research work with the Ellis micro-dynameter for the past 16 years, about which I have written two books, *Theory of Life, Disease and Death* (1942), Oxley & Son, Windsor, republished in U.S.A. 1945 by Cutler Publishing Co., Chicago, and *Investigations of Disease* (1951), Cutler Publishing Co. In these books I describe a very sensitive galvanometer which measures electro-chemical changes at the nerve site of disease. A kidney may have dropped into the pelvis, but the localization of the aseptic inflammation which occurs would with this instrument be localized in the posterior renal angle, the main area of nerve supply.

The following case with intravenous pyelogram illustrates my points in a graphic way:

J. E. H., aged 19 years was referred to me in March complaining of having lost 18 lb. weight over a period of a year. His doctor thought he had a gastric or duodenal ulcer but radiography did not reveal any gastro-intestinal condition. He vomited at frequent intervals unrelated to food while taking any form of passive or active exercise. I obtained this history after my examination with the micro-dynameter. This instrument is now beyond the stage of research and is an established aid to diagnosis. I now examine all patients without asking any history or making any clinical examination so as not to be biased.

Fig. 1: Horizontal. Position normal with poor filling of right kidney and hydronephosis of left kidney.

Fig. 2: Erect. Right kidney rotated and dropped distance of two vertebrae while left has made normal movement. Failed to empty after 50 minutes.

My examination with this sensitive galvanometer indicated a right and left renal condition only, since there were measurements of electrical energy in both renal angles which did not exist elsewhere. In the recumbent posture there was no palpability of either kidney. Urinalysis revealed nothing abnormal either chemically, microscopically or by culture. *These facts puzzled me*, but because of my faith in the micro-dynameter I sent the patient to a radiologist for an intravenous pyelogram with the result as illustrated (Figs. 1 and 2). I then had a blood urea carried out which was 60 mgm.%—quite sufficient

to account for the vomiting, which was the main cause of the loss of weight. I had no opportunity to carry the case further since the patient returned to Southern Rhodesia to be under his doctor.

It is clear to me that this case could not have been diagnosed by any other means than the one used, except by chance.

Morton Whitby.

Union Club Buildings,
Smith Street,
Durban.
17 April 1953.

[Letter inadvertently delayed.—*Editor.*]

HONORARY MEDICAL STAFFING OF HOSPITALS

To the Editor: In your editorial of 11 July 1953 you say quite rightly: 'One of the chief glories of the medical profession *has been* that its primary aim is service, not fees'. You proceed: 'As the greater hospitals became centres of medical research and education medical posts in them became sought after for reasons of honourable *professional ambition*'; and then: '*Much dignity* accrued both to the individual doctor and to the profession as a result of the honorary system.' (Italics are mine.)

It would be interesting to test these service and humanitarian motives by excluding all WCA, police and similar paying cases from *non*-European hospitals and then trying to run them efficiently on honoraria of say £50 per annum. Should we see the same rush of applications, the same canvassing and wrangling associated with similar posts in European hospitals? In this materialistic age doctors are like other human beings with respect to financial income—probably mainly because of changed circumstances.

The case for honorary versus full-time or part-time staffing of hospitals should therefore be decided on other grounds. I submit the only rational basis is: 'What is best for the patient?' It is highly commendable of the Association to wish to see as many doctors as possible in close touch with hospitals, but the hospitals are built and expanded mainly for the benefit of our patients. The question therefore is: Under which system do patients receive better treatment—the salaried system (professional co-operation) or the honorary system (professional competition)? I suggest that service and humanitarian motives, if still in existence, hardly enter into the picture.

'*20 years in full-time and private practice*'

16 July 1953

A REGISTER OF SPECIALISTS?

To the Editor: When a practitioner of the seniority of Dr. J. Drummond of Durban writes to our *Journal*, his letter demands the serious attention of members.

After studying this letter, published in the *Journal* of 4 July 1953, one is left with the impression that he has based his arguments on his wide personal experience, but, apparently, has paid insufficient attention to what has been happening in the rest of the world, or, even in the rest of South Africa. Dr. Drummond writes, 'One of the worst features of course, and perhaps the greatest anomaly in the specialist set-up, is that not only is South Africa the sole example in the world of a country in which a medical speciality is registrable by law, but it is one in which no steps have been taken to inaugurate the post-graduate training without which the attainment of specialist status becomes impossible.'

In that monumental work 'Final Report of the Commission on Medical Education' published in America in 1932, the following statement will be found. 'The Province of Alberta has recently enacted legislation governing specialists.' It would appear from this that South Africa is not the only country in the world to have legislated for the registration of specialists, nor was it the first country to do so.

Dr. Drummond's statement that 'no steps have been taken to inaugurate the post-graduate training without which the attainment of specialist status becomes impossible' is also incorrect. As the result of a conference organized by the Medical Council some years ago of representatives of the three universities with medical faculties, provision has been made at the Universities of Cape Town, Witwatersrand and Pretoria for degrees and diplomas in the specialities recognized by the Medical Council. The teaching hospitals provide the necessary training. It is possible, therefore, for prospective candidates for specialization to obtain both the necessary higher qualifications and training in this country.

The question of whether there should be a register of specialists is not only one of local interest but is one that has exercized the minds of medical educationists throughout the world for the last 25 years. The American Commission on Medical Education came to the following conclusion, 'Only those with an adequate training in a limited field of practice should represent themselves to be specialists. Some plan should be developed which will inform the public which physicians are qualified and experienced in each field. Probably the most satisfactory device would be a public Register of Specialists maintained in each state, admission to which would be granted only on the basis of adequate training and experience.' These conclusions were arrived at after years of investigation and after a detailed study of the registers of specialists that were already in existence at that time—1932—in Denmark, Norway, Austria, Germany and Turkey. As a result of the recommendations of the Commission there has been established in America a 'Directory of Medical Specialists' to which the public, as well as the medical profession, has access. This directory contains not only the name but also a short 'curriculum vitae' of each recognized specialist.

While not having the authority to consider whether a register of recognized specialists should be established, the British Commission on Medical Schools—the Goodenough Committee—recommended in 1944 'that qualifications and standards of specialist status should be determined by some suitable central machinery'.

It is understood that a plebiscite is being arranged by the Medical Association to determine whether its members are still in favour of a register of specialists. The decision should not be a difficult one. It will depend upon whether we consider that machinery should exist for defining and regulating the qualifications and standards of specialist status and that such machinery should include a register of recognized specialists, or whether we believe that the individual practitioner is competent to assess these standards for himself, and that no guidance in this matter is needed.

May I suggest that, when answering the plebiscite, we should vote not as general practitioners or as specialists, but as doctors anxious to make the best possible arrangements for our patients. What set-up should we prefer in the event of specialist treatment being required for our wives, our children, or even for ourselves?

R. Lance Impey.

National Mutual Building,
Church Square,
Cape Town.
16 July 1953.

NON-PAYING PATIENTS

To the Editor: The following letter has been received by my attorneys in response to a final demand for a minimum consultation fee.

'*Re*: £3 3*s*. 0*d*. *Account*

'I am in receipt of your letter dated 10th June for which I thank you. Unfortunately I have been unemployed since last October, only finding employment this April, so will be in no position to make payment until August when I can offer you half, and the remainder in November.

'I am rather surprised to see that Doctors sue their clients for payment, in England this is not done as it is not considered ethical, have they no conscience at all out here?

'Trust you will accept my offer of payment.'

The letter will, I think, explain to M. J. and others how many patients regard their doctors' accounts.

Consultant Surgeon

20 July 1953

The Medical Association of South Africa : Die Mediese Vereniging van Suid-Afrika

AGENCY DEPARTMENT : AGENTSKAP-AFDELING

JOHANNESBURG

Medical House, 5 Esselen Street. Telephone 44-9134-5, 44-0817
Mediese Huis, Esselenstraat 5. Telefone 44-9134-5, 44-0817

ASSISTENTE/PLAASVERVANGERS VERLANG
ASSISTANTS LOCUMS REQUIRED

(L/V411) An assistant to start 15 August. A house will be available. Details on application.

(L/V412) Assistant required for O.F.S. partnership practice. Must be bilingual. As there is a view to partnership, only applicants who have had reasonable G.P. experience need apply. Salary offered £100—£150 p.m. depending on experience.

(L/V413) An assistant to start as soon as possible. View to partnership. Salary and commission to be discussed. Near Johannesburg.

(L/V414) An assistant required for a Johannesburg partnership practice. Preferably ex-service man. Salary and allowances to be discussed.

(L/V418) Eastern Transvaal. An assistant to start as soon as possible. Salary £90 per month, plus free petrol and oil. Very little travelling and practically no night work. Excellent prospects.

(L/V419) Assistant required for Reef town. To start 1 September. Own car necessary. Salary and allowances to be discussed. Must be bilingual.

(L/V420) Country partnership practice. Locum for October. Salary £2 12s. 6d. per day, free petrol and oil and board and lodging plus £10 car allowance. Will suit newly qualified man.

PRAKTYKE TE KOOP : PRACTICES FOR SALE

(Pr/S81) Oos-Vrystaat. Geen opposisie. D.G. aanstelling teen £425 p.j. Jaarlikse inkomste £2,500. Premie van £750 sluit praktyk-toerusting, instrumente en medisyne in. As volg betaalbaar: £300 kontant en balans op maandelikse paaiemente; die bedrag waarvan onderling gereël kan word.

(Pr/S82) Excellent non-European practice near Johannesburg. Established in 1944. Average annual *net* income £2,700 cash. Premium required is £2,000 and terms can be arranged. Premium includes contents of surgery and maternity ward.

(Pr/S78) Oud-gevestigde Vrystaatse praktyk met D.G. aanstelling. Gemiddelde jaarlikse inkomste oorskrei £4,000. Premie van £2,000, sluit medisyne en apparate in. Uitstekende geleentheid vir 'n jong man.

(Pr/S84) Pleasant town in Northern Transvaal, with hospital facilities. General practice which was run by seller for 10 years besides a large non-transferable mine appointment. The appointment did not allow time for any Native work—only for very few district calls. Net cash income over £1,200 per year though only few hours daily were spent in this practice. Premium £500 on terms. Excellent start for young man.

(Pr/S85) Progressive Transvaal dispensing practice. Excellent surgical facilities. Average gross income £3,500 per annum. Premium required £2,500 and the following terms could be arranged: £1,250 deposit and the balance over a period of 18 months, starting 3 months after cash payment. The premium includes drugs, furniture and fittings, estimated at £800. Two transferable appointments worth £230 per annum. Scope for expansion.

(Pr/S86) Pretoria practice with two appointments. Annual income over £3,000. Long introduction will be given. Premium of £1,500 includes furniture, instruments and drugs. Terms will be accepted.

(Pr/S87) Wes-Transvaal. Uitstekende praktyk. Gemiddelde jaarlikse inkomste oorskrei £3,000. Woonhuis en spreekkamers te koop of te huur teen £14 en £11 per maand, onderskeidelik. Premie verlang is £1,500 en terme kan gereël word. Skryf om volle besonderhede.

INSTRUMENTS

A second-hand Corneal Microscope is required.

PARTNERSHIP FOR SALE

(P/O21) Half-share in essentially English-speaking private practice in Johannesburg. Gentile with 3 or 4 years' experience. Premium £2,500.

DURBAN

112 Medical Centre, Field Street. Telephone 2-4049

PRACTICES FOR SALE : PRAKTYKE TE KOOP

(PD13) Natal Lower South Coast practice, near Pondoland border, suitable for retired doctor. Area developing and large Police holiday camp in vicinity. Excellent climate and very good fishing. Premium required £400, includes good stock of drugs and dressings, instruments and dispensary furniture. House for sale £1,800, including stand of one-third morgen. Bond available. For immediate sale. Owner having taken a full-time appointment.

(PD15) General practice established 1941 at pleasant residential and seaside resort about 10 miles south of Durban. Annual income approximately £1,000. No major surgery, minimum of minor surgery and only emergency midwifery being done at present. Brick house with consulting room attached, for sale at £5,250. Owing to ill health owner wishes to retire from practice as soon as possible. Premium £1,000 including drugs, surgery and dispensary furniture.

(PD20) Natal South Coast. General mixed prescribing practice with 2 surgeries 11 miles apart. Premium £1,000 plus £200 for full equipment of 2 surgeries. Large proportion of the patients are European visitors, and Indians. A lucrative Native practice could be built up if dispensing was carried out. Immediate introduction.

(PD21) East Griqualand. General mixed practice with net profit of £3,000 annually. Excellent prospects. Premium £2,150.

(PD22) Natal. Prescribing and dispensing country practice. Total gross receipts for 1951, £3,344 15s. 9d.; 1952, £2,817 10s. 6d.; 1953 (3 months), £846 6s. 10d. Premium £1,500, includes drugs, consulting room furniture and instruments. House for sale £5,500.

(PD23) Natal. Prescribing practice particularly suitable for a woman doctor interested in obstetrics and gynaecology. Total gross receipts for 1950, £1,570; 1951, £1,595; 1952, (6 months), £1,340; 1953 (3 months), £382. Premium £1,250, includes furniture, fittings, instruments, drugs and existing book debts.

PARTNER REQUIRED

(PDX) General Practitioner in Durban offers partnership preferably to one with experience. Capital necessary.

ASSISTENTE/PLAASVERVANGERS VERLANG
ASSISTANTS LOCUMS REQUIRED

(138) Assistant required immediately in general country practice near Pietermaritzburg. £1,000 per annum. Two appointments. Very little surgery or midwifery. Should possess own car.

(139) Locum required Natal country practice. 30 August to 30 September. Must be bilingual and possess own car. £2 12s. 6d. per day, all found.

(140) Assistant immediately until end of year. Partnership of four. Experience in anaesthetics a recommendation. Hospital facilities available. Salary £100 per month.

* * * *

KAAPSTAD : CAPE TOWN

Posbus 643, Telefoon 2-6177: P.O. Box 643, Telephone 2-6177

PRAKTYKE TE KOOP : PRACTICES FOR SALE

(1295) Karoo hospitaaldorp. Geleë in vooruitstrewende skaapdistrik. Ontvangste vir 1952: £2,640. Premie verlang: £1,250. £500 kontant, balans oor 2½ jaar. Drie aanstellings aan die praktyk verbonde.

(1349) Eastern Province hospital town. Partnership share in large busy practice. Gross income for the last year was over £5,000. Premium required £1,250. Excellent opportunity for Afrikaans doctor interested in surgery.

(746) Cape Town. Large dispensing practice, mainly non-European. Average annual cash receipts approx. £5,200. £5,500 required for premium, drugs and surgery furniture. Details on application.

(1356) Very well established CAPE TOWN SUBURBAN PRACTICE. Outright sale or alternatively partnership share available to Gentile purchaser. Excellent opportunity to acquire a good class practice. Details on application.
(1387) Boland. Nucleus praktyk en goeie voorraad instrumente, ens. teen £400. Uitstekende vooruitsigte vir uitbreiding.

ASSISTENTE/PLAASVERVANGERS VERLANG
ASSISTANTS/LOCUMS REQUIRED

(1347) Cape Town suburb. Gentile assistant with view to partnership. Salary offered £80—£100 per month according to qualifications. Locum must have own car.
(1409) Ship's surgeon from mid-March 1954 for 1 month for voyage from Cape Town to Beira and back. Male essential. Salary to be arranged.
(1410) Northern Cape. Locum tenens in partnership of three from early November for 12–15 months. Salary £75 p.m. plus £10 p.m. car allowance and free board and lodging. Own car essential. Scope for surgery.
(1414) Transkei. Locum for the period 23 September—7 November. Salary £2 12s. 6d. Own car not required.
(1426) S.W.A. Locum for 6 weeks, any time from now to 7 October. General practice. Very little night work, maternity and travelling. Salary £3 10s. per day plus board and lodging. 9d. per mile travelling expenses paid.

Divisional Council of Britstown

NOTICE NO. 4/1953

PART-TIME MEDICAL OFFICER OF HEALTH

Applications are hereby invited for the above-mentioned position, and will be received by the undersigned up to Thursday, 27 August 1953.

The duties attached to the position are such as fixed by circular No. 140/19/157, dated 10/4/1922, of the Department of Health, and appointment will be made in terms of the Memorandum of Agreement as to duties and terms of appointment of part-time M.O.H. and subject to the approval of the Minister.

Remuneration of £50 p.a. will be paid plus a locomotion allowance of one shilling (1s.) per mile where the official avails himself of his own car in the rural areas.

Applications marked 'Medical Officer of Health' must state the following particulars as regards competence:

(a) Experience and qualifications.
(b) Age.
(c) Marital state and whether bilingual.

O. van Wyk
Secretary

Divisional Council Office
Britstown
27 July 1953

Praktyk te Koop

Noord Vrystaat. Geen opposisie. Baie goeie toekoms, met vooruitstrewende distrik. D.G. aanstelling. Jaarlikse inkomste by £3,500; kan vermeerder word. Premie £2,000 sluit in groot voorraad medisyne, instrumente en meubels. Betaling kan gereël word. Skryf aan 'A. R. T.', Posbus 643, Kaapstad.

Assistentskap Verlang

Dokter verlang assistentskap met die oog op 'n vennootskap in die Vrystaat, verkieslik meer sentraal. Drie jaar gekwalifiseerd. Stel baie belang in snykunde. Skryf aan 'A. R. U.', Posbus 643, Kaapstad.

Situation Wanted

Situation wanted as locum or assistantship with view to buying practice eventually. Hospital town preferred. Bilingual and gentile. Write 'A. R. S.', P.O. Box 643, Cape Town.

South African Iron and Steel Industrial Corporation Limited

FULL-TIME ASSISTANT MEDICAL OFFICER

Applications are invited from suitably qualified general medical practitioners for the above post.

The successful applicant will be stationed at Pretoria but will be required to serve the Corporation at any centre of the Corporation's activities to which he may from time to time be directed.

The successful applicant will also be required to submit a satisfactory certificate of health, and the appointment will be subject to the Corporation's general conditions of service.

Applications must be received on or before 28 August 1953.

Application forms, together with full particulars, will be forwarded to *bona fide* applicants on written application to the undersigned.

A. E. Hardenberg
Personnel Manager

P.O. Box 450
Pretoria
14 July 1953

(This appointment has the approval of the Medical Association of South Africa.—*Assistant Secretary, M.A.S.A.*)

Suid-Afrikaanse Yster- en Staal Industriële Korporasie Beperk

VOLTYDSE ASSISTENT-MEDIESE BEAMPTE

Aansoeke om bogenoemde pos word ingewag van pas gekwalifiseerde algemene mediese praktisyns.

Die suksesvolle applikant moet hom op Pretoria vestig maar dit sal van hom verlang word om die Korporasie te dien op enigeen van die Korporasie se sentrums van bedrywigheid soos van tyd tot tyd vir hom aangewys word.

Van die suksesvolle applikant word tewens verlang om 'n bevredigende gesondheidsertifikaat voor te lê, terwyl die aanstelling aan die Korporasie se algemene diensvoorwaardes onderworpe is.

Aansoeke moet voor of op 28 Augustus 1953 ontvang word.

Aansoekvorms, tesame met volledige besonderhede, word aan *bona fide* applikante gestuur op skriftelike versoek by ondergetekende.

A. E. Hardenberg
Personeelbestuurder

Posbus 450
Pretoria
14 Julie 1953

(Hierdie aanstelling is deur die Mediese Vereniging van Suid-Afrika goedgekeur.—*Assistent Sekretaris, M.V.S.A.*)

South African Mutual Life Assurance Society

REQUIRES

FULL-TIME MEDICAL OFFICER

Salary £2,000 per annum, plus cost-of-living allowance, the present rate of which is £320 per annum for a married man and £100 per annum for a single man.

Post requires full-time attendance during office hours, between 8.30 a.m. and 5 p.m., Mondays to Fridays only, and duties include examination of medical documents connected with the Society's business, duties relating to staff, medical examination of new staff, and such other medical examinations as the Directors may require.

Applicants, who should be fully bilingual and under 40 years of age in order to qualify for membership of staff Pension Fund, should submit in writing full details of qualifications and experience and the date on which duties could be assumed.

Applications must be in the hands of the Staff Department, S.A. Mutual, Darling Street, Cape Town, not later than 12 noon on 31 August 1953.

Cape Town
3 July 1953

Transvaalse Provinsiale Administrasie

VAKATURES BY PUBLIEKE HOSPITALE

Aansoeke word ingewag van kandidate met geskikte kwalifikasies vir die onderstaande poste by publieke hospitale in die Transvaal.

Aansoeke moet gerig word aan die Geneeskundige Superintendent of Verantwoordelike Geneesheer van die betrokke Hospitaal en moet volle besonderhede bevat aangaande die ouderdom, professionele, akademiese en taalkwalifikasies, ondervinding en huwelikstaat van die applikant en moet voorts 'n aanduiding bevat van die vroegste datum waarop diens aanvaar kan word.

Lewenskostetoelae tans betaalbaar aan voltydse werknemers:

Salaris	*Lewenskostetoelae*	
	Getroud	*Ongetroud*
Oor £350	£320 p.j.	£100 p.j.

Van persone wat aangestel word, sal verwag word om bevredigende sertifikate in te dien, asook om hulle te onderwerp aan 'n geneeskundige ondersoek by die betrokke hospitaal.

Aansoek vorms is verkrygbaar van enige Transvaalse Publieke Hospitaal of die Provinsiale Sekretaris, Afdeling Hospitaaldienste, Posbus 2060, Pretoria.

Benewens jaarlikse salaris en lewenskostetoelae ontvang voltydse werknemers spoorwegkonsessie en word verlof toegestaan ooreenkomstig die hospitaal verlofregulasies.

Die sluitingsdatum van aansoeke vir die poste is 24 Augustus 1953.

Hospitaal	*Vakature*	*Emolumente*	*Opmerkings*
Baragwanath Hospitaal-bestuur en die Universiteit van die Witwatersrand	Senior Geneesheer (1)	£2,000	Geregistreerd mediese praktisyn. Hoër kwalifikasies in medisyne 'n aanbeveling.
Pietersburg	Geneeskundige Superintendent (1)	£1,200 × 50 —1,500	Geregistreerd mediese praktisyn. Administratiewe pligte. Plus vry huis of £180 per jaar huistoelae.
Germiston	Kliniese Assistent (Departement van Medisyne) (1)	£620—780 820—860	Geregistreerd mediese praktisyn. Moet vir ten minste twee jaar gekwalifiseerd wees.
Germiston	Kliniese Assistent (Departement van Chirurgie) (1)	£620—780 820—860	Geregistreerd mediese praktisyn. Moet vir ten minste twee jaar gekwalifiseerd wees.

(41869)

Partnership Offered

Practitioner with large thriving European and non-European City practice offers one-third share partnership. Larger share may be made available later if desired. Cash required for one-third share, £2,000. Write 'A. R. K.', P.O. Box 643, Cape Town.

Partnership Wanted

Doctor wishes to purchase a partnership in well-established practice in Cape Town. Write 'A. R. O.', P.O. Box 643, Cape Town.

Practice for Sale

Cape Town: Recently established surgery in Southern suburbs. For immediate sale. Owner has taken on an assistantship. Write 'A. R. P.', P.O. Box 643, Cape Town.

Provincial Administration of the Cape of Good Hope

HOSPITALS DEPARTMENT

HOSPITAL BOARD SERVICE: VACANCY

1. Applications are invited for the following vacant post:

Institution	*Post*	*Emoluments*	*Closing Date*	*Applications must be addressed to:*
Queen's Central Hospital, Cradock	Radiologist, (Part-time)	£200 p.a. (fixed)	11.9.53	The Director of Hospital Services, P.O. Box 2060, Cape Town.

2. Conditions of service are prescribed in terms of Hospital Board Service Ordinance No. 19 of 1941, as amended, and the regulations framed thereunder.

3. Application must be made on the prescribed form (Staff 23) which is obtainable from the Director of Hospital Services, P.O. Box 2060, Cape Town, or from the Medical Superintendent of any Provincial Hospital or Secretary of any School Board in the Cape Province.

4. Candidates must state the earliest date on which they can assume duty. (A562694)

Provinsiale Administrasie van die Kaap die Goeie Hoop

HOSPITAALDEPARTEMENT

HOSPITAALRAADSDIENS: VAKATURE

1. Aansoeke word ingewag om die volgende vakante pos:

Inrigting	*Pos*	*Emolumente*	*Sluitingsdatum*	*Aansoeke moet gerig word aan:*
Sentrale Hospitaal Queen's, Cradock	Radioloog (Deeltyds)	£200 p.j. (vasgestel)	11.9.53	Die Direkteur van Hospitaaldienste, Posbus 2060, Kaapstad.

2. Die diensvoorwaardes word voorgeskryf ingevolge die Ordonnansie op Hospitaalraadsdiens nr. 19 van 1941, soos gewysig, en die regulasies wat daarkragtens opgestel is.

3. Aansoek moet gedoen word op die voorgeskrewe vorm (Staf 23) wat verkrygbaar is by die Direkteur van Hospitaaldienste, Posbus 2060, Kaapstad, of by die Mediese Superintendent van enige provinsiale hospitaal of by die Sekretaris van enige Skoolraad in die Kaapprovinsie.

4. Applikante moet die vroegste datum meld waarop hulle diens kan aanvaar. (A562694)

Thermal Welding Products Ltd.

PART-TIME MEDICAL OFFICER

Applications are invited for the position of a part-time Medical Officer to attend non-European personnel at our works. This appointment has the approval of the Medical Association of South Africa. Apply General Manager, Thermal Welding Products Limited, P.O. Box 560, Benoni.

Nursing Home Vacancies

A private nursing home, Rondebosch, C.P. has vacancies for the treatment of ALCOHOLICS of both sexes. Patients admitted for treatment under their own private doctor if desired. Full particulars may be obtained from the Resident Physician Superintendent. Telephone: 6-6627 or write P.O. Box 2829, Cape Town.

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